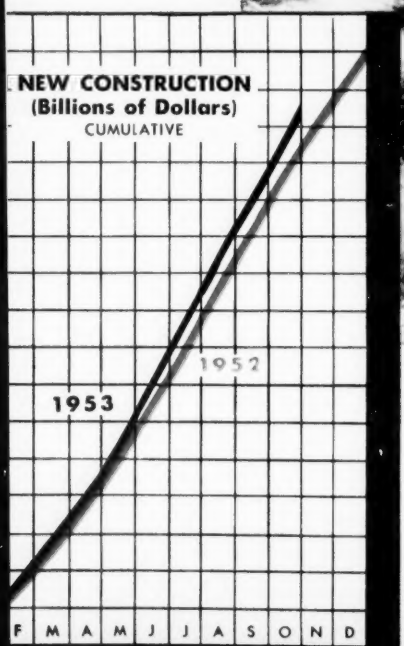
The CONSTRUCTOR

OFFICIAL PUBLICATION OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA

Volume XXXV **NOVEMBER 1953** Number 11

- **BUILDINGS**
- **HIGHWAYS**
- **AIRPORTS**
- **RAILROADS**

PUBLIC WORKS



Spanish Bases Interest Contractors—21

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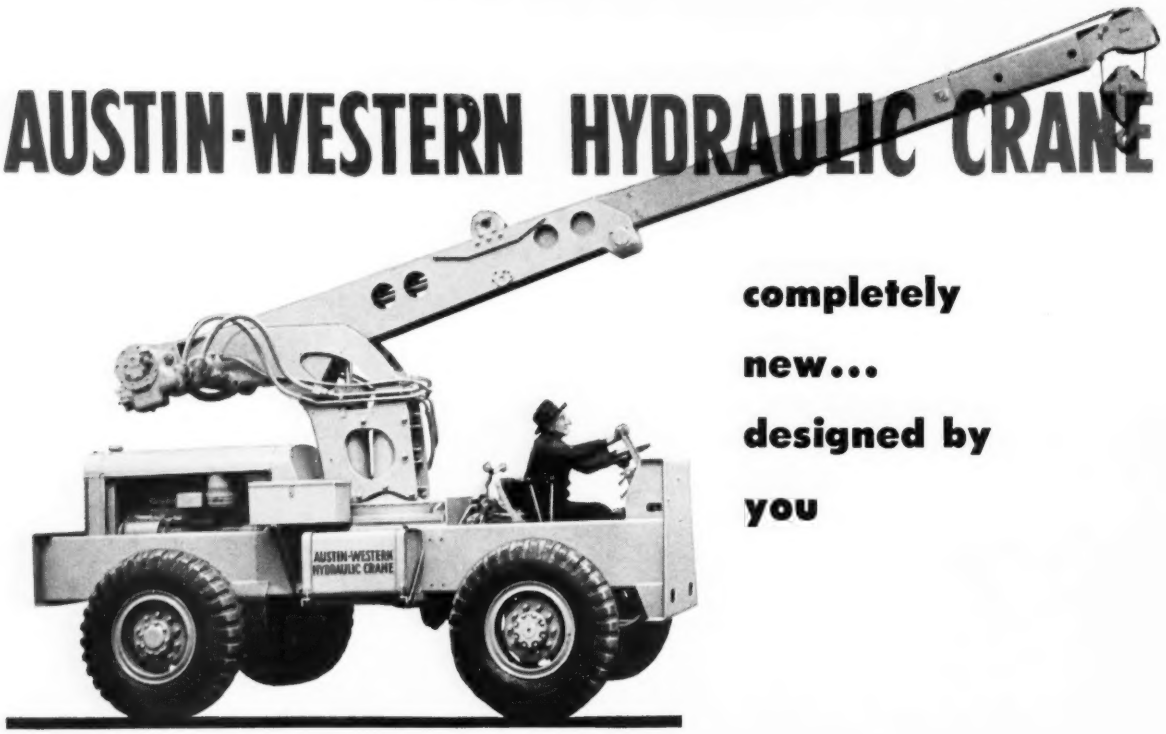
AUSTIN-WESTERN HYDRAULIC CRANE



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Designed only after making a complete analysis of your crane requirements—here is TOMORROW'S answer to TO-DAY'S materials handling problems.

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This amazing, new, self-propelled Hydraulic Crane, with its pickup, carrying and placement capabilities combines the best features of crawler, truck and erection cranes with those of industrial shop cranes . . . and, like all other Austin-Western products, it's "Built to Outperform".

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Company .....

Street .....

City ..... Zone ..... State .....

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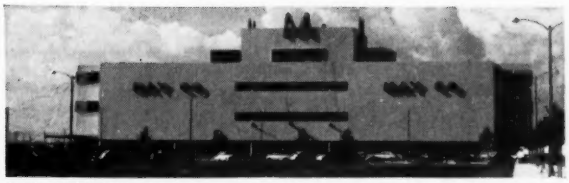
Coast to coast...Ryerson re-bars

Meet Construction Schedules

From Boston to Los Angeles, leading contractors depend on Ryerson for on-time deliveries of fabricated reinforcing steel and related products.

A few recent projects on which Ryerson supplied the steel are shown here. Their size, variety and widespread sites point up the fact that Ryerson can handle any type of job in almost any location. Re-bars are accurately cut and bent. Metal tags that won't blur or tear make identification easy. And to simplify purchasing *all* steel requirements can be ordered from one source.

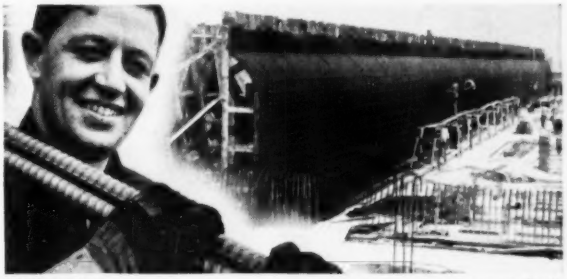
On your next job contact Ryerson for a lump sum or average pound price.



LOS ANGELES—T. S. Construction Engineers built this new May Co. department store—with the help of on-time deliveries of re-bars from Ryerson.

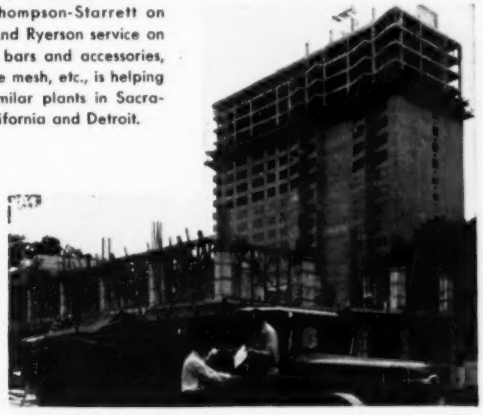
BOSTON—Gust K. Newberg Construction Co. was contractor for this new 1000-bed veterans hospital at Brockton, Mass. Ryerson supplied 4,000 tons of reinforcing steel for the project.

MILWAUKEE—In building the Milwaukee County Stadium (home of the Braves) Hunsinger Construction Co. played safe—ordered fabricated re-bars from Ryerson.



BROOKLYN—Thompson-Starrett Co. was contractor for the vast Owl's Head sewage treatment plant (shown here during construction) which will have a daily capacity of 160 million gallons. Ryerson supplied the reinforcing steel—4,000 tons of it delivered to Thompson-Starrett on schedule. And Ryerson service on reinforcing bars and accessories, spirals, wire mesh, etc., is helping to build similar plants in Sacramento, California and Detroit.

BUFFALO—Bates and Rogers Construction Co. depended on Ryerson for the reinforcing steel needed to carry a new elevated highway over waterways and industrial congestion. More than 2,000 tons of fabricated re-bars were delivered when needed.



CHICAGO—Neighboring multi-story apartments rise on Chicago's lake front with the help of dependable Ryerson steel deliveries. For the building in foreground contractors were: Crane Construction Co. and Carl E. Erickson Co. For building in background: Sumner S. Sollitt Construction Co.

PRINCIPAL PRODUCTS: REINFORCING BARS AND ACCESSORIES, SPIRALS, WIRE MESH, STRUCTURALS, PLATES, SHEETS, STAINLESS, ETC.

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JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CINCINNATI • CLEVELAND • DETROIT
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GRAVESEND HOUSES, Brooklyn, N. Y.

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General Contractor:
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Architect: **MATTHEW W. DEL GAUDIO**, New York

Structural Engineers:
TUCK & EIPEL, New York

Ready-mix 'Incor' Concrete:
COLONIAL SAND & STONE CO., INC., New York

● Assembly-line efficiency in industry has its counterpart in construction, as illustrated in Gravesend Houses, latest in New York City Housing Authority's record-shattering program.

Foundation problems slowed the job—but concreting know-how made up two months' lost time, got the job back on schedule. Walls and slabs above first floor, in the 15 seven-story units, were concreted with 'Incor' 24-Hour Cement.

Well-built forms were filled, stripped, reassembled, on schedules as precise as any automobile assembly line: 105 floors concreted in 66 working days—1.6 floors a day! Contractor's sum-up:

'Incor' was a life-saver . . . the job went twice as fast, thanks to high early strength you can rely on . . . exceptionally smooth surfaces saved on finishing, too.

Point to remember: Today's concreting methods, with an assist from 'Incor',* make available the inherent fire-safety of concrete-frame construction, at faster erection speeds—and lower costs.

*Reg. U. S. Pat. Off.

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The CONSTRUCTOR

BUILDINGS • HIGHWAYS • AIRPORTS RAILROADS • PUBLIC WORKS

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COVER

Building concrete piers for a bridge across the Missouri River and an arm of the lake formed by Garrison Dam near Sanish, North Dakota. A two-yard bucket suspended from a crane was used to pour concrete. A.G.C. members, Massman Construction Co., and Kansas City Bridge Co., both of Kansas City, are the builders.

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Cranes widen Snake Creek Canal, Florida

JOB-ENGINEERED FINANCE PLANS

U. S. Army Engineers called on Troup Bros., Inc., of Miami, Florida, to widen and deepen Snake Creek Canal. Their giant cranes gouged out 1,750,000 cubic yards of sand and rock in record time.

Financing arrangements for the purchase of the cranes you see in this picture were made through C.I.T. Corporation—an important factor which contributed to completing the job ahead of schedule.

C.I.T. Corporation is ready to meet *your* money needs—a capital loan or equipment financing—with plans "Job-Engineered" to your individual needs. For quick assistance—write or call one of the offices listed below.

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New construction put in place last month amounted to $3.2 billion, setting a new high for October, the Department of Commerce announced. Private construction was estimated at $2.1 billion with public expenditures at $1.1 billion. Unusually good construction weather this autumn has helped increase total outlays for the first 10 months of 1953 to $29.1 billion, 7% above last year's rate.

Spanish base construction is expected to be managed under one prime construction contract to be awarded after Jan. 1 by the Bureau of Yards and Docks. No final plans have been made, but an American firm is expected to be awarded the cost-plus-a-fixed-fee contract. Most actual work will be done by Spanish subcontractors. (Page 21)

Reorganization of the Bureau of Reclamation, placing all of the agency's technical functions once again in Denver and abolishing all district offices in favor of "project offices," was announced last month by the Department of Interior. (Page 45)

Rear Admiral Joseph J. Jelley, chief of the Bureau of Yards and Docks since 1949, became Director of Construction in the Defense Department early this month in the office of Assistant Secretary (Properties and Installations) Franklin G. Floete.

New chief of the bureau is Rear Admiral John R. Perry, who had been director of the Pacific and Alaskan Division of the bureau. Captain Joseph A. McHenry was designated to relieve Captain A. D. Hunter as deputy chief of bureau. (Page 22)

Present long-range highway program as developed by state and local governments with federal aid was urged continued by U. S. Chamber of Commerce last month. Recommendations contained in report by Subcommittee on Public Works Construction headed by A.G.C. past president M. W. Watson. The C. of C. will hold its National Conference on Highway financing Dec. 11-12 in Washington, D. C., to study the problem more. (Page 51)

Corps of Engineers accepted some changes and modifications to its Engineering Manual for Airfield Flexible Pavement Design and the Guide Specifications for Flexible Pavement, Bituminous Binder and Surface Courses recommended by the A.G.C. (Page 37)

Bureau of Public Roads established a new Division of Engineering under Deputy Commissioner A. C. Clark last month to replace its offices concerned with construction and maintenance, and programs and design. Additional offices under his supervision include primary highway, secondary roads, bridges and urban highways. (Page 51)

A.A.S.H.O.-A.G.C. joint cooperative committee members discussed highway problems at regional meetings in Asheville, N. C., and Santa Fe, N. Mex., last month. Chief topic of the Asheville meeting was adequate financing. The Santa Fe meeting heard B. B. Armstrong, president of the Associated Contractors of New Mexico, A.G.C., call for economy measures in highway construction. (Page 52)

New A.S.C.E. president Daniel V. Terrell, dean of College of Engineering, University of Kentucky, took office last month during the society's annual convention in New York. Dean Terrell succeeds Walter L. Huber, a partner of the consulting firm of Huber and Knapik, of San Francisco.

New Jersey Turnpike Authority last month completed the sale of $150 million of 3⅜% bonds to finance the construction of an extension from its Newark Airport Interchange to Bayonne, Jersey City and a direct connection to New York's Holland Tunnel. The authority plans to seek immediate bids from contractors on this extension.

Falcon Dam dedicated last month by United States and Mexico with President Eisenhower and President Adolfo Ruiz Cortines officiating. New dam, southeast of Laredo, Texas, on the Rio Grande, was constructed for $46 million by a joint venture of A.G.C. contractors. (Page 46)

Supreme Court, without comment, last month refused to review an NLRB decision in a case involving general contractors. In the case, NLRB held that contractors may be charged with unfair labor practices in the employment of workmen even though the NLRB is incapable or unwilling to conduct representation and union shop elections. (Page 28)

A.G.C. President C. P. Street, accompanied by Vice President John MacLeod and Executive Director James D. Marshall, completed a swing through four Northwestern states where they received first-hand information on local conditions and discussed the outlook for the industry in view of a recent A.G.C. survey. (Page 73)

North Mississippi Chapter of the A.G.C. formally received its charter of membership in the national association at a ceremony held last month in Meridian, Miss. The charter was presented by W. Murray Werner, of Shreveport, La. (Page 74)

Building trades' union wage scales rose slightly in the third quarter of 1953, but at a slower rate than during the corresponding period last year, the Bureau of Labor Statistics announced last month. The estimated average union scale of construction workers was $2.71 per hour this year, which is 10 cents above the Jan. 2 level.

Need for safety in the nation's cities, on its farms and over its highways was brought into sharp focus by the 41st National Safety Congress held in Chicago Oct. 19-23. More than 12,000 representatives from government, industry, labor and education attended the sessions. (Page 58)

Total cost of government in U. S. amounted to $101.5 billion for fiscal year 1952, the Commerce Department reported early this month. *Summary of Governmental Finances in 1952* placed federal outlay at $70.6 billion and the combined state and local costs at $30.9 billion.

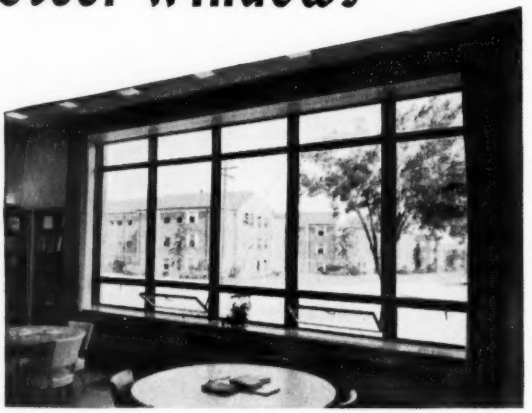
Veterans Administrator Harvey V. Higley announced last month that Col. Raleigh M. Edgar would succeed Col. Frank H. Dryden as assistant administrator for construction in charge of the VA's construction program. Col. Edgar went to the VA following separation from the Army in 1946, and has served as chief of the construction division since 1949.

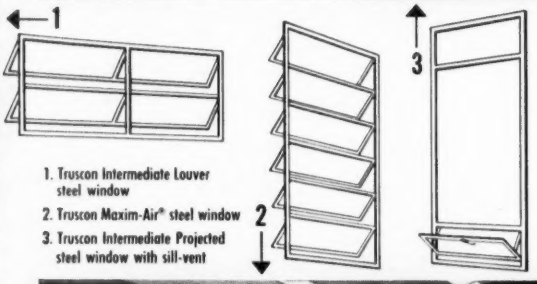
Cleveland Heights Public Library, Cleveland Heights, Ohio
Garfield, Harris, Robinson and Schafer, *Architects*
Alger-Rau, Inc., *General Contractors*

New Cleveland Heights Library...

Luxuriously Day-Lighted Through Truscon Steel Windows

Libraries can be bright and cheerful, too . . . as the City of Cleveland Heights, Ohio, proves in this striking new cultural building. It is especially well-lighted and well-ventilated because it is well-windowed with Truscon steel units. Here, Truscon windows complement the long, low, sweeping architectural lines; they allow ample daylight; they operate easily; and, they require an absolute minimum of maintenance. Ventilators permit a precisely-controlled flow of fresh air . . . even at the height of blustery Great Lakes winters. Thanks to a fine selection of Truscon steel windows, more people will find pleasure in reading, in Cleveland Heights.





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2. Truscon Maxim-Air® steel window
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A Series of Graphs Outlining the Construction Trend

Compiled by The Associated General Contractors of America

TREND OF CONSTRUCTION COSTS

The average of construction costs in the principal construction centers of the United States for October stands at Index Number 418 according to the A.G.C. Index. The cost figure for October 1952 was 397. The 1913 average equals 100.

WAGE AND MATERIAL PRICE TRENDS

The average of wages in the principal construction centers of the United States stands at 587 for October. One year ago the average stood at 554. The average prices paid by contractors for basic construction materials for October stand at Index Number 306. The average a year ago stood at 293. The 1913 average, again, equals 100.

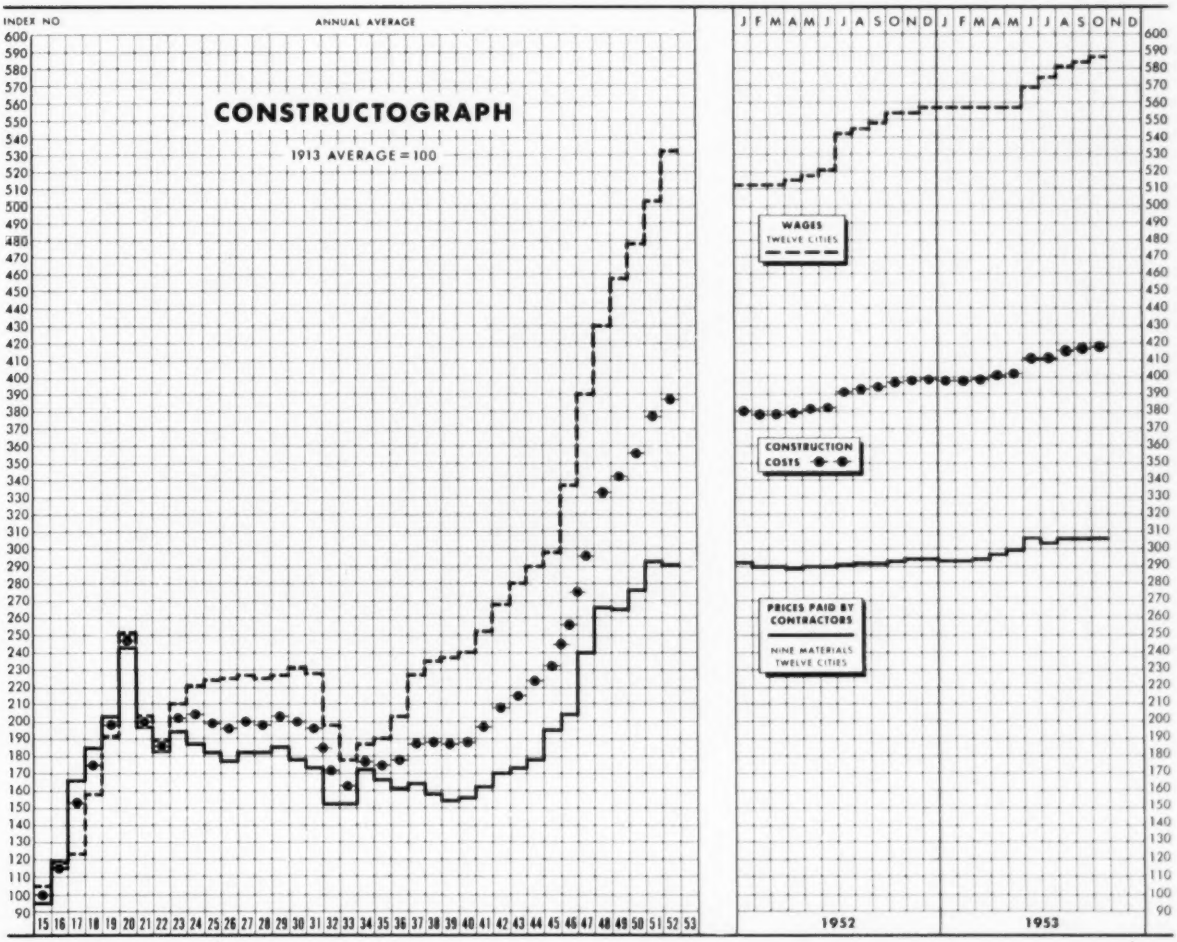
CONTRACT AWARDS IN 37 STATES

The volume of contracts awarded during September (Index Number 316, based on 1936-38) is an increase of 58 points from August and a decrease of 77 points from September 1952. (F. W. Dodge Corp.)

REVENUE FREIGHT LOADINGS

Revenue freight loaded during the first 42 weeks of 1953 totaled 31,507,202 cars. For the same period in 1952, loadings amounted to 30,551,021 cars. This represents an increase of 3%.

● Wage, Material Price and Construction Cost Trends



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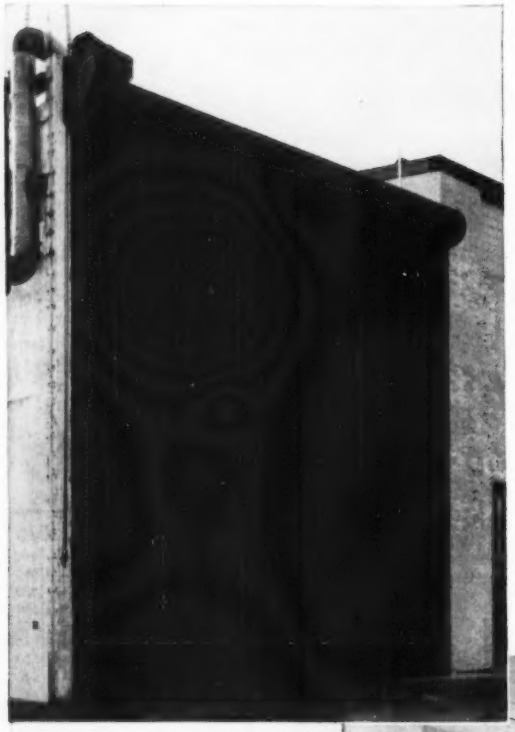
. . . more desirable from ANY STANDPOINT!



For unusual openings, such as the one at the left, and normal truck openings in any type of building, there is no door that offers as many desirable features as a good quick-opening, quick-closing, power operated rolling steel door. Their vertical, roll-up action occupies no usable space either inside or outside the door opening—no overhead obstructions to interfere with crane operations. No other type of door offers these inherent advantages of space economy and compactness in operation. In addition, rolling steel doors are permanent . . . their all-metal construction assures you a lifetime of continuous trouble-free service, and provides maximum security against intrusion and fire. When you select a rolling steel door, it will pay you to check the specifications carefully . . . you will find that the galvanized steel material for the interlocking curtain slats of Mahon Rolling Steel Doors is chemically cleaned, phosphated, and treated with a chromic acid solution to provide paint bond, and, that the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. This is just one of the extra-value features of Mahon Rolling Steel Doors—you will find others. See Sweet's Files for complete information including Specifications, or write for Catalog No. G-54.

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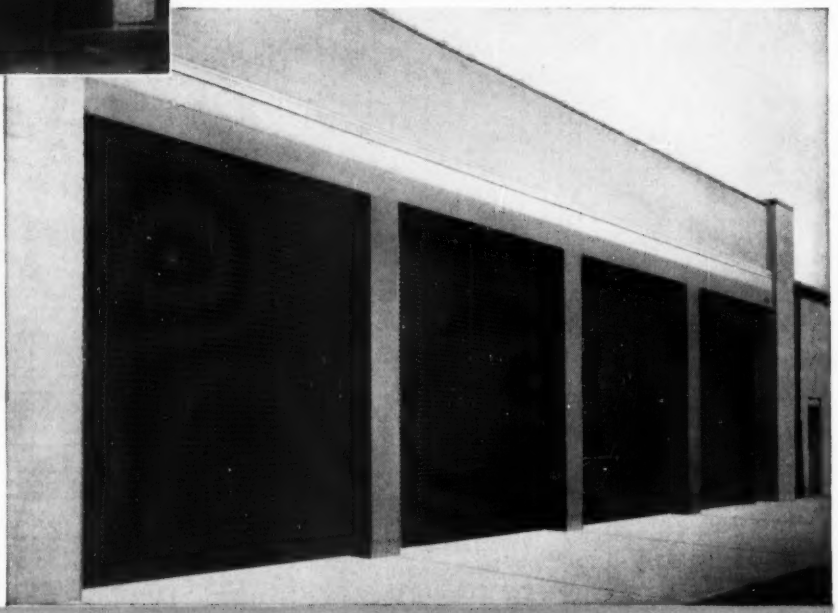
Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters' Labeled Rolling Steel Doors and Fire Shutters; Insulated Metal Walls and Wall Panels; Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms.

Above you see one of two Mahon Power Operated Rolling Steel Doors 30'-0" x 30'-0" installed in a General Electric Test Cell. At right are four Mahon Power Operated Rolling Steel Doors installed in truck openings of an enclosed shipping dock in a new plant for the Detroit Hardware Company.



ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

MAHON

● TOTAL Construction Compared with Gross National Product

(BILLIONS OF DOLLARS)

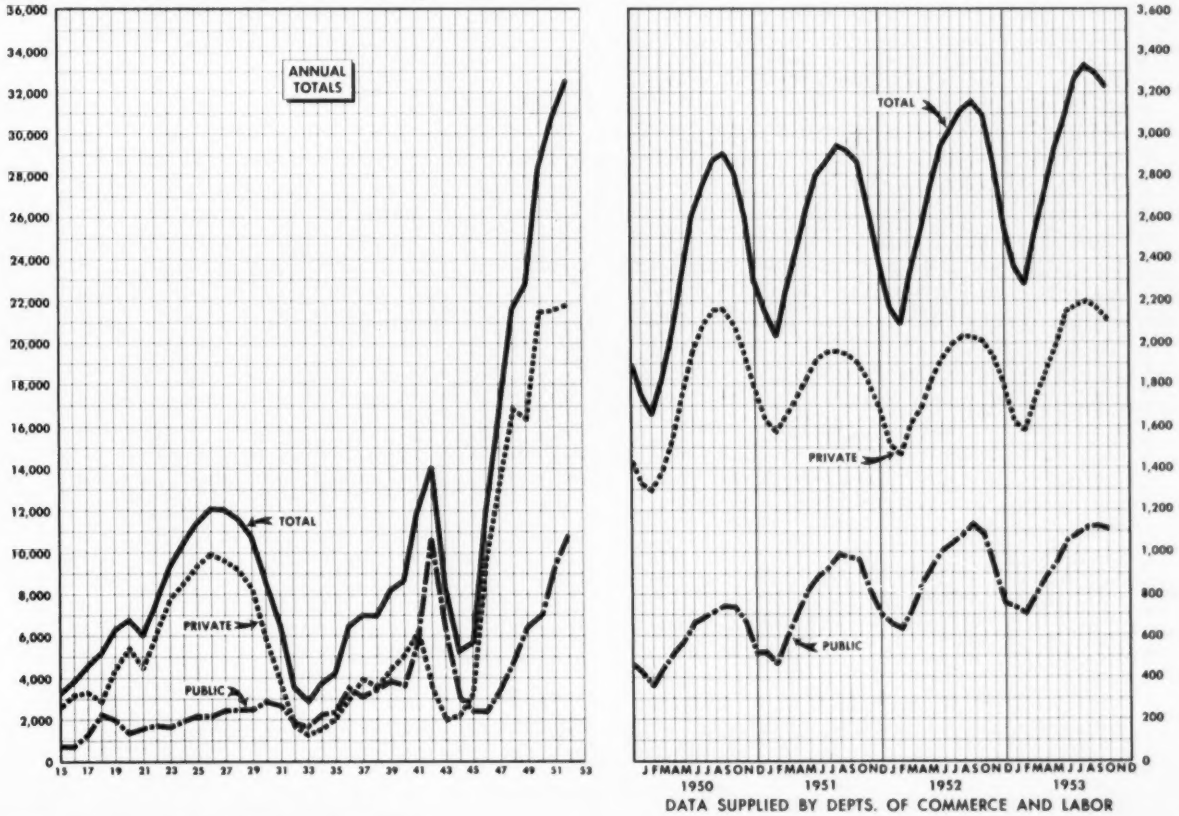
DATA SUPPLIED BY DEPT. OF COMMERCE

● NEW Construction Compared with Gross National Product *

(BILLIONS OF DOLLARS)

** Seasonally adjusted at an annual rate*

● New Construction Activity (MILLIONS OF DOLLARS)



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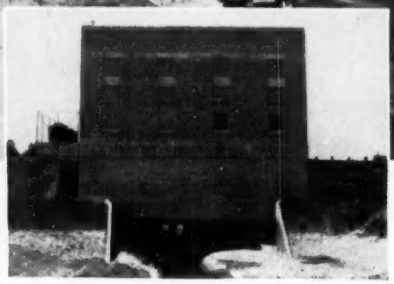
"Prescription" for accuracy...

from Mr. W. S. Walters, Executive Vice President of Fischer Lime and Cement Company, Memphis, Tennessee



ABOVE: Fischer Lime and Cement Company, Memphis, Tennessee serves western Tennessee with construction materials and ready mixed concrete. AT RIGHT: Workhouse Bayou Pumping Station, Memphis. Ready mixed air entrained concrete furnished by Fischer Lime and Cement Company.

Construction men everywhere are agreed on the many advantages of *air entrainment* in the concrete that they mix.

But W. S. Walters, Executive Vice President of Fischer Lime and Cement Company, Memphis, is one of the many concrete experts who know that to get the *required results* from air entrained concrete you must be careful to mix the *required ingredients*. He knows that the amount of air actually entrained in concrete is influenced by many factors in addition to the amount of air entraining agent in cement . . . also, that different jobs often *require* different degrees of air entrainment. He knows that *no* air entraining cement, regardless of brand, is perfect for every job, every time.

That's why Mr. Walters says—"*Whether they want building materials or ready mixed concrete, our customers always get their orders filled accurately. To insure accuracy in air entrained concrete we always add the agent at the mixer.*"

On your next concrete job . . . let the "prescription" technique pay off for you, too.

* * *

If you have any problems or questions on the use and mixing of air-entrained concrete, a Marquette Service Engineer will be glad to help and advise you—contact any Marquette office.

Marquette Cement

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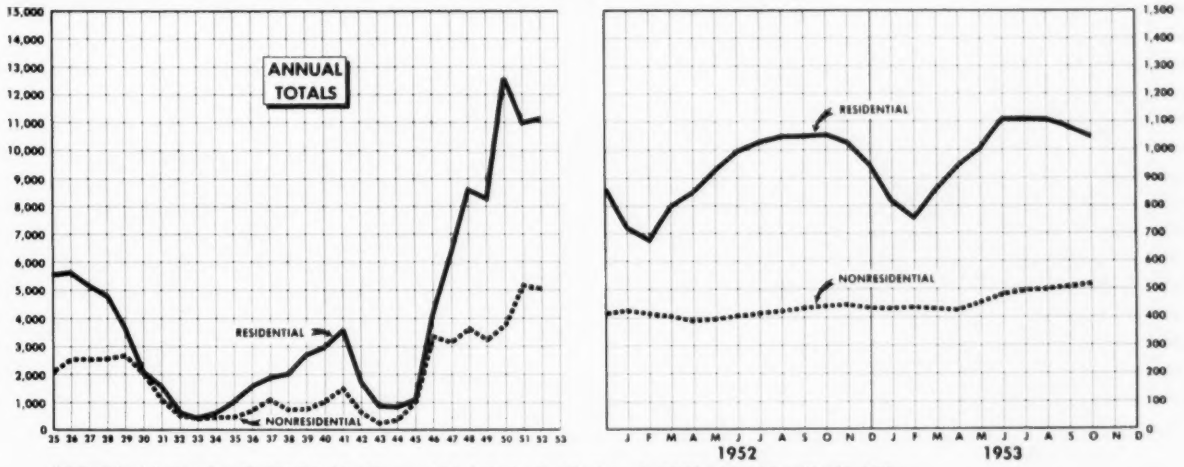
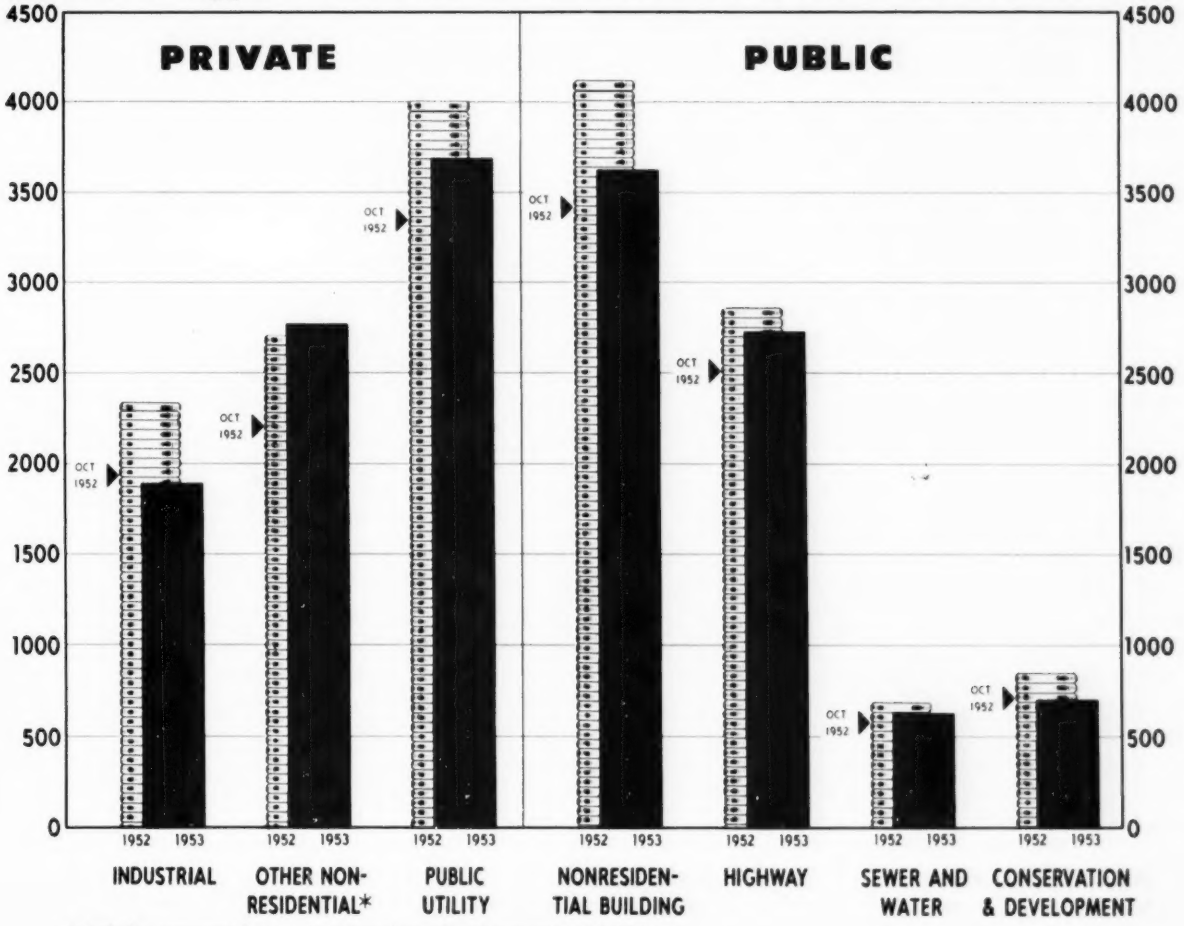
NEW CONSTRUCTION ACTIVITY

● Private Residential and Nonresidential Building * (MILLIONS OF DOLLARS)



* Residential excludes farm; Nonresidential includes industrial, commercial, institutional, and social and recreational building, but excludes public utility building.

● Selected Types: (CUMULATIVE, MILLIONS OF DOLLARS) 1952, 1953 VOLUME THROUGH OCTOBER



* Includes commercial, institutional, and social and recreational building.

BIG DAMS

built with TELSMITH EQUIPMENT

Grand Coulee Dam Washington

●

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For Moderate Income Families in Large Cities

(Formerly referred to as the "Cost of Living Index," compiled by the Bureau of Labor Statistics)

Increasing costs for wearing apparel, medical care, housing, personal care and transportation—despite a decline in food prices—raised the government's Consumer Price Index for September by 0.2% to 115.2, setting a new all-time high for the fourth month in a row.

Biggest monthly gain was registered by wearing apparel which increased 1%; medical care rose 0.7%; and housing, personal care and transportation increased slightly.

The rise in apparel prices resulted chiefly from higher prices for fall and winter clothing items priced in September for the first time since the end of the previous winter season.

Food, on the other hand, declined 0.3% in over-all price. The continued fall in fruit and vegetable prices (5.4%) along with a moderate decline of 0.5% in meats and fish offset the advances registered by other food subgroups during the month.

This is the seventh straight monthly increase for the Bureau of Labor Statistics index which now stands 0.8% higher than it did a year ago and 13.2% higher than June 1950, just prior to the Korean war.

The Consumer Price Index, formerly calculated on the base 1935-39=100, was converted beginning January to the new base 1947-49=100 in compliance with recommendations of the Bureau of the Budget.

A portion of this index below indicates the average changes in retail prices of selected goods, rents and services bought by the average family of moderate income from July 15, 1951 to September 15, 1953.

They are represented here for use by employers who may wish to take these cost of living data into consideration when contemplating adjustments of wages based on increased living costs.

Aside from the change of the base years, the revised index includes prices of about 300 items, compared to some 200 for the previous index. The "weight" assigned to items is now based on facts concerning family expenditures of wage earners and clerical workers found in a survey on consumer expenditures conducted by the bureau.

The first five cities in the table below are checked and reported on monthly. The other 15 cities are surveyed and their indexes published quarterly.

	1951			1952			1953		
	JULY	AUGUST	SEPTEMBER	JULY	AUGUST	SEPTEMBER	JULY	AUGUST	SEPTEMBER
Average	110.9	110.9	111.6	114.1	114.3	114.1	114.7	115.0	115.2
New York, N. Y.	109.5	109.3	110.3	112.3	112.2	112.4	112.1	112.7	113.2
Chicago, Ill.	112.1	112.1	112.6	115.0	115.5	115.0	115.7	116.3	116.6
Los Angeles, Calif.	111.7	111.7	112.0	115.0	114.9	115.0	115.8	115.8	116.2
Philadelphia, Pa.	111.4	111.4	111.8	114.8	114.9	114.7	114.7	114.9	115.2
Detroit, Mich.	111.7	111.7	112.0	114.6	115.0	114.7	116.9	116.9	116.9
Atlanta, Ga.	.....	113.9	.....	.....	117.0	.....	.....	.....	117.6
Baltimore, Md.	.....	.....	110.8	.....	.....	115.0	.....	.....	115.0
Boston, Mass.	109.9	110.1	110.4	113.7	113.7	113.2	113.1	.....	.....
Cincinnati, Ohio	110.2	110.0	110.9	113.4	113.4	113.2	.....	.....	115.3
Cleveland, Ohio	.....	111.0	.....	.....	114.0	.....	.....	115.1	.....
Houston, Texas	113.8	114.0	114.6	115.2	115.8	115.5	.....	116.8	.....
Kansas City, Mo.	111.6	.....	.....	115.3	.....	.....	115.3	.....	.....
Minneapolis, Minn.	.....	.....	110.6	.....	.....	114.8	115.6	.....	.....
Pittsburgh, Pa.	111.4	111.1	111.8	113.0	113.5	113.2	113.8	.....	.....
Portland, Ore.	113.0	.....	.....	114.7	.....	.....	115.5	.....	.....
St. Louis, Mo.	.....	.....	111.6	.....	.....	115.5	.....	.....	117.1
San Francisco, Calif.	.....	.....	110.2	.....	.....	114.5	.....	.....	116.9
Scranton, Pa.	.....	109.8	.....	.....	114.0	.....	.....	113.2	.....
Seattle, Wash.	.....	111.7	.....	.....	114.6	.....	.....	116.8	.....
Washington, D. C.	.....	110.1	.....	.....	114.1	.....	.....	114.2	.....

a nose for business

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TULAKES AIRPORT • OKLAHOMA CITY, OKLA.

Sidelights for Contractors

By John C. Hayes, Counsel

Taxes

Income Tax Regulations.—The Treasury has adopted new Regulations 118, replacing the old Regulations 111. The new set is applicable to taxable years beginning after December 31, 1951. No substantive changes have been made, but there has been eliminated a number of out-of-date provisions, with the result that the new regulations are less difficult to follow.

Tax Rates.—Effective with respect to individuals for taxable years starting after October 31, 1953, and with respect to corporations for taxable years starting after March 31, 1954, the maximum tax on capital gains is slated to be reduced slightly from the present 26% rate to a 25% rate. It continues to appear that the excess profits tax on corporations will not be extended beyond December 31, 1953, and that the 10% cut in individual taxes will take effect on January 1, 1954. However, the administration has announced that it will oppose the corporate income tax rate cut from the present 52% to the reduced 47% and the excise tax reductions now scheduled for April 1, 1954.

Depreciation.—In a case involving a general heavy construction contractor, the Tax Court upheld the Commissioner of Internal Revenue in requiring that a salvage value of 20% of costs of the contractor's automobiles and trucks be recognized in computing depreciation, where the contractor had sold six autos and trucks in the years 1946 through 1949 at substantial sums in excess of their depreciated costs computed by the straight line method on their full original costs. However, the court disagreed with the commissioner that the contractor be required similarly to reduce the cost of other items of construction equipment, such as pavers, graders, cement bins, cranes, and drag-line excavators, by probable salvage in computing depreciation thereon, where the contractor's experience with such machinery and equipment as a whole showed that it was disposed of only as junk without substantial value.

Salvaged Materials.—In the foregoing case, the Tax Court further decided that the contractor had realized ordinary income rather than capital gain from the sale by it of items, such as hardwood timbers, ties, seamless steel tubing, and gravel, acquired by it as waste material from various jobs and at no cost. On the other hand, the court classified as capital gain the income received from the contractor's sale of salvaged I-beams which had been acquired in 1944 and used as equipment on various construction jobs prior to their sale in 1948. The court concluded that the latter I-beams had been held for use as equipment in the contractor's business, while the former items had been held primarily for sale to customers in the ordinary course of business.

Transportation Allowance.—The commissioner has published a ruling that reasonable transportation allowances paid to employees while working for a strictly temporary period on a construction project located at a distance from their principal or regular place of employment do not constitute "wages" for employment tax purposes, nor are they subject to income tax withholding. From the standpoint of the employee, such allowances are includible in gross income, but the employee may deduct his actual expenses for such daily transportation, whether less than or in excess of the allowance, in the manner spelled out in the ruling.

Tax Payments.—In the reorganization of the Bureau of Internal Revenue, authority has been delegated to the district directors in the field to grant extensions of time to pay income, excess profits, estate and gift taxes, including deficiencies.

Partnership Interest.—Where remaining partners paid a premium to a withdrawing partner to obtain the latter's interest in the partnership, the Tax Court held that the amount in excess of the withdrawing partner's capital account must be capitalized rather than deducted as a business expense. The transaction was not so much a voluntary withdrawal as a sale of the withdrawing partner's interest, including the firm's good will, to the remaining partners.

Public Contracts

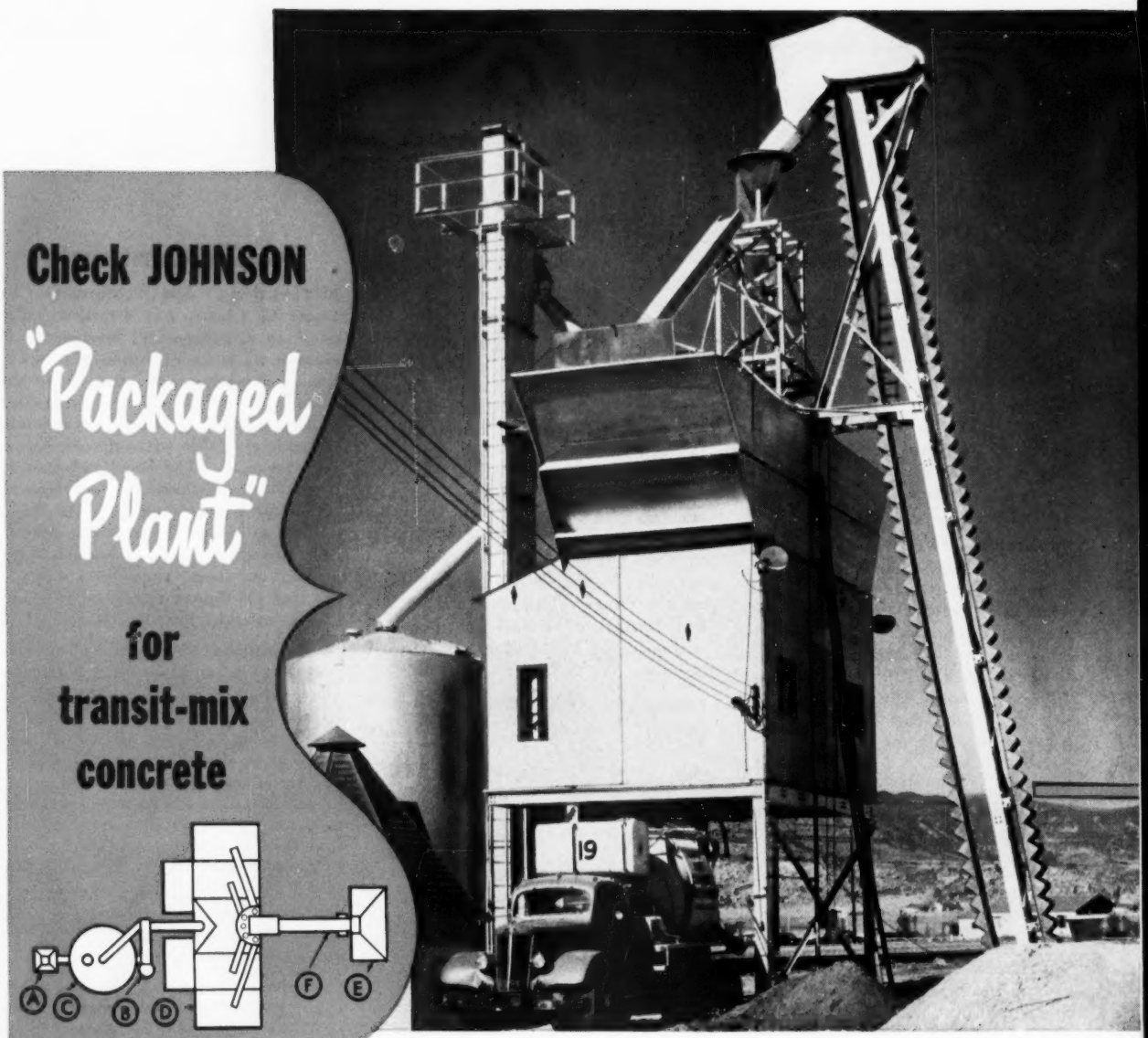
Misleading Specifications.—The Court of Claims has awarded judgment to a government contractor to recover its costs of running a power line to a construction site, where the specifications had led the contractor to believe that electric power would be made available without such necessary expense. The court referred to the rule that where the government makes positive statements in its drawings or specifications for the guidance of bidders, a contractor has the right to rely on them, regardless of contractual provisions requiring the contractor to make investigations.

Renegotiation.—Failure by a war contractor to seek a redetermination by the Tax Court of its 1943 excess profits as found by the War Contracts Price Adjustment Board, according to a circuit court decision, precluded the contractor from raising, in the government's district court suit to recover such profits, the defense that the government had failed to determine such liability within one year of the beginning of renegotiation proceedings. The circuit court also sustained 4% interest as allowable on the excessive profits.

Collusive Pricing.—A circuit court has upheld the government's suit against a government subcontactor and one of the latter's officers for double damages and forfeitures under the federal False Claims Act on proof of price fixing collusion based on the cost-plus contractor's purchasing agent's having tipped off the subcontractor that he could increase his unit price without losing the subcontract, even though the increased price may not have been unreasonable.

Lucas Act.—In a suit brought by a war contractor under the War Contracts Hardship Claims Act, the Court of Claims ruled that a sole proprietor performing necessary supervisory services in fulfilling a government contract may properly include his salary as a proper item of costs in determining his actual net loss. However, recovery for such item cannot be allowed unless the contractor's claim for relief requested reimbursement therefor.

Check JOHNSON "Packaged Plant" for transit-mix concrete



Specially developed for low-cost production of transit-mix concrete, this plant is a typical example of Johnson "complete-package" engineering. Plant is fully Johnson-equipped. Every function, from receiving and storage of materials to final weigh-out, is carefully co-ordinated for fast, accurate operation. Here's how it works:

Truck-receiving hopper (A) feeds cement into a screw conveyor, which carries the cement to enclosed bucket elevator (B). 275-bbl.-per-hour elevator fills an all-welded, 520-bbl. storage silo (C), or directs the flow of cement as needed into central compartment of plant bin (D). Aggregates are received at truck-unloading hopper (E). An open, inclined elevator (F) feeds the aggregates into a pivoted distributor, mounted at top of bin. Johnson welded tandem bin provides total overhead storage capacity of 110 cu. yds. for immediate plant use. Bin consists of four 19-yd. aggregate compartments, and a centrally-located, 250-bbl. cement compartment. On batcher floor, below bin, 2 cu. yd. Concentric Aggregate-Cement Batcher, and a Johnson water batcher accurately weigh out materials, and discharge into transit-mix trucks.

For any transit-mix, central-mix or concrete products operation, large or small, it will pay you to check the efficiency of Johnson plants and accessory equipment. See your Johnson distributor soon, or write us.

C.S. JOHNSON COMPANY

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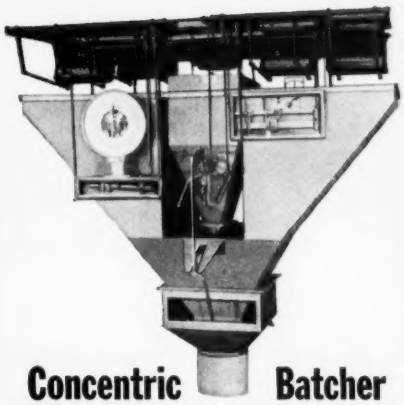
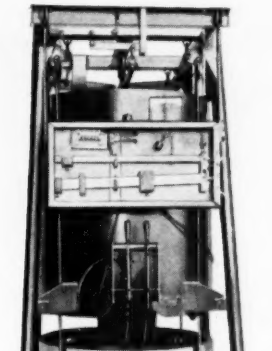


Concentric Batcher gives central cement feed

In this exclusive Johnson Concentric Batcher, aggregates are arranged concentrically around cement . . . prevents "gumming". Cement is weighed on separate scale; aggregates are weighed on accumulative dial scale, or on individual beam scales. Sizes: 2 to 6 cu. yds., can be arranged for 2 to 8 aggregates, plus 1 to 4 types of cement. Fully automatic, air-ram operated . . . or semi-automatic . . . or manual controls.



Johnson Water Batcher

increases mix plant efficiency . . . gives close quality control of concrete. Accuracy is not affected by changes in water temperature. Capacities: 120-gal. (1,000 lbs.) for batches up to 3 yds., and 240-gal. (2,000 lbs.) for batches up to 6 yds. Either semi- or fully-automatic types available.

DIG 17 FT. DEEP . . . 6 FT. WIDE

With single boom, Parsons big-capacity 310 Trenchliner digs up to 17 feet deep, in 1½ to 4½-foot widths . . . or, with dual booms, it digs 6 feet wide at 12-foot depth . . . produces up to 20½ feet of trench per minute, depending on depth, width, soils. Shiftable boom cuts within 15 inches of either side. Power-shift spoil conveyor dumps right or left. Also check 4 smaller ladder and wheel-type Trenchliners, full-crawler mounted . . . and rubber-tired Trenchmobile®. See your Parsons distributor or send for bulletins.

PARSONS COMPANY, Newton, Iowa *(Koehring Subsidiary)*

½-YARD . . . 10-TON KOEHRING 205

Versatile Koehring 205 with ½-yard shovel or hoe readily converts to dragline, clamshell or lift crane . . . lifts up to 10 tons on crawlers. Also available on rubber tired mounting. All main clutches are self-adjusting. There's no time out for continuous manual clutch adjustments . . . no "compromise" settings. Heat compensator springs make tension changes automatically . . . maintain full clutch efficiency at all times. Other Koehring heavy-duty sizes to 2½-yds. dipper capacities . . . 79½ ton lift capacities. Write for bulletins.

KOEHRING COMPANY, Milwaukee 16, Wisconsin

Y47

..CLAMSHELL, CONCRETE BUCKETS

DURAPLASTIC* scores another touchdown in Texas stadium

THE REFEREE is W. F. Swigert of Swigert Construction Company, Waco, Texas, contractor for Baylor University's huge new stadium. His verdict: "We are well pleased with the performance of Duraplastic in any type of construction."

Mr. Swigert says his firm has used Atlas Duraplastic air-entraining portland cement for years because "Duraplastic-made concrete is more workable, and there is less segregation of aggregates."

Important points! Duraplastic also minimizes water-gain, generally improves surface appearance, fortifies the finished concrete against the effects of freezing-thawing weather . . . and in paving, resists the scaling action of de-icing salts.

YET DURAPLASTIC COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Ave., New York 17, N.Y.

NOTE UNIFORM SURFACE appearance of concrete in close-up of this stadium job. With Duraplastic, less mixing water is needed for a given slump. The mix is more plastic and more uniform; aids proper placement.

OFFICES:

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*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company

ATLAS®

DURAPLASTIC

AIR-ENTRAINING PORTLAND CEMENT

A UNIVERSAL ATLAS PRODUCT

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Makes Better Concrete at No Extra Cost

Code of Ethical Conduct

THE rules of Ethical Practice—that portion of the Code of Ethical Conduct of The Associated General Contractors of America which sets forth the "working principles" by which members are to be governed in their relationships with the public, owners, and others in the industry and their own profession—has been printed in a form suitable for framing and a copy has been sent to each A.G.C. member for display in his office.

Through the years the principles embodied in the document have stood the test of time and have served as reasonable guides for good business relationships.

The display of these Rules, and their observance, can be further evidence of the skill, integrity and responsibility of A.G.C. members.

Construction Costs

(Following a survey of its own, The Wall Street Journal on October 6 published the following editorial:)

A NATIONWIDE survey by this newspaper uncovers some evidence that the building construction industry is not only becoming more competitive but also that it is meeting the new competition by cutting costs. This is at once both a warning and an encouragement.

The construction industry is one segment of the economy that has given many economists their greatest concern. In dollar volume it is one of our biggest industries; as an employment factor it accounts for about one out of every six jobs in the nation. Consequently, the industry has played a key role in the post-war boom and will play an equally important one in any period of readjustment.

What alarms the economists is the prospect that the construction industry might find its cost structure so rigid that it would be unable to adjust to a lesser demand with lower costs.

This newspaper's survey is encouraging because it found many instances where contractors have succeeded in trimming their costs—a school building estimated to cost $300,000 was bid at less than $275,000 by every contractor, a grading and paving job estimated at $66,000 was contracted at $35,000, and so on.

Although the cases are spotty, they nevertheless indicate that by eliminating overtime pay, by carefully planned buying and by trimming profit margins to a minimum, over-all costs can be brought down. This will help keep marginal projects from being postponed or abandoned and help support the industry's activity.

The warning lies in the very fact that the industry is getting more competitive, with would-be builders more influenced by cost factors, and in the fact that there is a limit to the adjustments that can be made by eliminating overtime and trimming profit margins.

Below this level there is a more difficult rigidity—labor costs. Under the impetus of the building boom unions have driven wage rates to phenomenal levels, often much higher than rates for comparable skills in other industries. Yet it is not solely a matter of hourly wages; it is also a matter of arbitrary union working rules and antiquated building codes supported by those craft unions with vested interest in them.

With the return of still more competitive conditions to construction the health of the industry—and the continued prosperity of the workers in it—will surely be measured by the way the unions as well as management can overcome the problem of rigidity in costs.

Government's Capital Outlay

STATISTICS on governmental finances just released by the Bureau of the Census show that federal, state and local governmental expenditures for the fiscal year 1952 totaled a whopping $101.5 billion, or $646 per capita for the nation.

The tremendous investment that all levels of government have in construction and equipment is indicated by the fact that an aggregate of $24.9 billion, or nearly one-fourth of total governmental expenditures, went into capital outlay—for construction, equipment, and purchase of land and structures.

Of course, a substantial amount of this went into equipment that cannot be classified as construction—estimated at $14.7 billion for all governments combined. This large proportion for equipment is readily understood when it is recognized that the tremendous federal expenditures for military equipment and ship construction are included.

The Census Bureau was able to identify $9.7 billion of the expenditures which went directly into construction, with the exceptions that federal land purchases are included, and federal force account construction is not included.

This $9.7 billion in construction, or $62 per capita, was divided as follows: federal outlay, $3,337 million; state, $2,323 million; and all other local governments, $4,063 million.

The total $9.7 billion includes $9.1 billion in contract construction, and $578 million in force account construction by state and local governments.

The Bureau stated:

"It has not been possible to identify and include here federal expenditures for force-account construction; such amounts are included in federal current operation expenditure."

It is unfortunate that the federal government, with its tremendous facilities for gathering statistical information, has not yet found it possible to identify all of its construction performed by force account or day labor, although such figures for local governments are available. Such information would be of keen interest to the industry.

The financial summary just released, however, presents a valuable source of information for current studies of federal-state fiscal relationships, and also for public works expenditures.

ANNOUNCING a new, special-alloy steel cutting edge for bulldozers and scrapers

We are pleased to announce the development of the "Rhino" blade, a new cutting edge . . . precision-machined and rolled in accordance with our exact specifications.

It's another addition to our already full line of top-quality scraper, bulldozer, maintainer, snow plow and other blades for efficient construction and maintenance of the nation's highways and roads.

The "Rhino" blade will give you rugged, dependable service. The top-quality for which SHUNK blades have been known for almost a century is, naturally, an integral part of this new blade in the Shunk line.

Stocks of the "Rhino" blade will be on hand in all popular sizes. Write us for more information *today*.

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BEST BLADES MADE

BUCYRUS, OHIO

A.G.C. Code of Ethics Available for Framing

• Adopted in 1925, Rules Have Stood the Test of Time

» THE RULES of Ethical Practice of the Code of Ethical Conduct of The Associated General Contractors of America have been reprinted in a size suitable for framing and display in the offices of member firms.

The A.G.C. Code of Ethical Conduct was adopted originally by the association in January 1925. It was reviewed at the association's 28th annual convention in January 1947 and found to have stood the test of time. It was published with only minor changes. The Code states in part:

"The business structure of America founded upon private initiative, has grown so complex that successful government of business conduct by legislation is not only undesirable but practically impossible.

"Industries and individuals, in order to retain the benefits arising from this free initiative, and to avoid the hampering burdens of regulatory legislation, must themselves accept responsibility for fair and intelligent self-government.

"Such government does not require a profound knowledge of law and legal procedure, but merely the courage to abide by self-imposed restraints and principles which the intelligent and fair-minded majority of any industry clearly understand. Especially in construction, which affects so fundamentally the entire country, is this courage needed."

In the Rules of Ethical Practice are sent forth the "working principles" by which members of the A.G.C. are to be governed in their relationships with others. The rules are in five parts relating to owners and the public, engineering and architectural professions, subcontractors and those who supply materials, the contractor operating in the territory outside his home chapter, and discipline.

The Committee on Ethics which wrote the Code of Ethical Conduct stated: "The function of ethical standards for a society such as this, is essentially two-fold: first, to establish principles of business conduct to be observed by members in their relations with each other, and second, to establish principles to be observed in their transactions with those who utilize their services. In either sense they represent the minimum requirements for fair competition and honorable dealing."

Copies of the 16 x 20 inch document have been sent to all A.G.C. members and chapters.

Spanish Bases Attract 200 Contractors

• Award of Prime Contract Not Expected Until First of Year

» ALTHOUGH only one prime construction contract is expected to be awarded for expanding and improving naval and air bases in Spain, almost 200 American contractors have made inquiry about the work.

The Navy Bureau of Yards and Docks, which is responsible for the construction in Spain, is not expected to award the contract until after the first of the year. It will provide that wherever possible the actual work be performed by Spanish subcontractors with maximum possible use of local labor and materials.

By the end of October few details were available on the scope of the work or exactly how the construction would be handled. A Navy-Air Force team went to Spain during the month to give further study to the proposed construction.

On September 26 the governments of Spain and the United States announced that they had made an agreement whereby the U. S. will extend certain military aid to Spain in exchange for use of existing or new bases. Congress has appropriated funds for construction, rehabilitation and modernization of naval and air bases.

Secretary of the Air Force Harold E. Talbott has been designated by the Secretary of Defense as the executive agent for all U. S. military activities in Spain. By agreement of the Secretaries of Navy and Air Force, the Bureau of Yards and Docks is responsible for the construction.

On October 9 the Defense Department announced that a joint Navy-Air Force board had selected for the architect-engineer contract the combination of Shaw, Metz and Dolio, of Chicago; Metcalfe and Eddy, of Boston; Frederic R. Harris, Inc., of New York, and Pereira and Luckman, of Los Angeles. They will open offices in Madrid shortly and start preparation of master plans and the design of required facilities. They likewise are required to use a minimum of American and a maximum of Spanish personnel.

While the Bureau of Yards and Docks has made no final plans on how it will handle the construction, it is expected that an American firm will be selected as the prime contractor under a cost-plus-a-fixed-fee contract. The Navy expects to staff the project adequately with officers, and to permit the contractor to execute the work so far as possible under normal construction procedures.

The prime construction contract probably will be essentially a management contract. The contractor will be expected to provide high-grade men to supervise the work. Contractors interested are advised by the Bureau to send up-to-date brochures as soon as possible to the Chief, Bureau of Yards and Docks. Many contractors already have made visits to the Bureau in Washington.

$125 Million on Air Bases

According to members of the architect-engineer combination, the Defense Department expects to spend about $125 million on air base improvements in the vicinities of Madrid, Seville, Barcelona, Albacate, Valencia, Cuidad Real, Saragossa and the island of Minorca. In addition, improvements were scheduled at the port bases of Cadiz on the Atlantic and Cartagena on the Mediterranean, which are to serve dual purposes as naval stations and ports to insure the supply of materiel to the inland air bases.

From Madrid early this month, where Secretary Talbott, the architects and engineers, and naval officers who will direct the operations were inspecting the terrain, came dispatches that plans are under way for development of four of the air bases. It was expected that completion of the plans and specifications would require four to six months.

Shift in Defense, Navy Construction Chiefs

• Jelley Takes Creedon Job, Perry Heads Yards and Docks

» SHIFTS in the construction heads of the Defense and Navy Departments this month place Rear Admiral Joseph J. Jelley in the position of Director of Construction in the Office of the Assistant Secretary of Defense, and bring new faces to the Navy's Bureau of Yards and Docks.

Admiral Jelley, who had been Chief of the Bureau of Yards and Docks since 1949, assumed his position November 3 under Assistant Secretary (Properties and Installations) Franklin G. Floete. His post, combined with that of Mr. Floete, takes over the duties formerly performed by Frank R. Creedon under the title of Director of Installations, plus some additional functions asigned under the recent Defense reorganization plan.

Adm. Jelley

Assigned to head the Bureau of Yards and Docks was Rear Admiral John R. Perry, 54, who had been Director of the Pacific and Alaskan Division of the Bureau since last May, with headquarters in San Francisco.

Captain Joseph A. McHenry, 49, who advanced rapidly as a reserve officer during World War II and was transferred to the regular Navy in 1946, was designated by Admiral Perry to relieve Captain A. D. Hunter as Deputy Chief of the Bureau. The Navy had made no announcement by early this month of Captain Hunter's new assignment.

Capt. Hunter

Admiral Jelley, who shortly after the war served briefly as the youngest admiral in the Navy when the Deputy Chief of the Bureau of Yards and Docks held that rank, played a key role in the postwar roll-up of the Navy's wartime shore establishment. He also has directed construction of permanent peacetime structures, and spark-plugged development of improved ship-to-shore support for amphibious operations such as provided by the Seabees in the Korean landings.

He has pushed engineering research into light-weight and mobile construction equipment and materials to speed base construction. He was awarded the Legion of Merit for his work as deputy director of the Bureau's Construction Department during World War II.

In his new post he will have increasing responsibilities as the armed forces expand their base-building operations around the world.

Admiral Perry

Admiral Perry, a native of Waco, Texas, was graduated from the Naval Academy in 1923, advanced to captain by 1943, served in the temporary rank of commodore in 1944-46, and in 1952 became a rear admiral. He received the bachelor and master degrees in civil engineering from Rensselaer Polytechnic Institute.

During the '30's, he served successively at Great Lakes, Ill., Pensacola, Fla., the Philippines, and the Bureau of Yards and Docks where he became Director of Administration and Personnel in 1941. For his work in this last post he was awarded the Legion of Merit with citation for "exceptionally meritorious service." The citation states in part:

Adm. Perry

"Exercising remarkable initiative and excellent judgment, Commander Perry undertook, in January 1942, the tremendous task of recruiting, organizing, training, equipping and distributing to outlying bases the Navy's Construction Battalions. In the course of one year, despite numerous difficulties and adverse conditions (he) . . . succeeded in training and making available for service in the field some 70,000 men of the approximate 125,000 recruits and 2,715 officers enrolled during that time. . . . (His) engineering and executive skill in producing such a vital component part of our military organization constitutes a source of exceedingly praiseworthy material benefit to the armed forces."

In 1944 he took command of the 2nd Naval Construction Brigade in the Pacific as a commodore, and in 1945 was Deputy Commander Construction Forces, 7th Fleet, then Commander Construction Troops, 7th Fleet. For his work in 1945 he received a Gold Star in lieu of a Second Legion of Merit with citation for "outstanding services" in the Leyte-Samar and other Philippine areas.

He returned to the United States in his permanent rank of captain as Public Works Officer at the Naval Academy until 1948, served as Assistant Chief for Operations in the Bureau of Yards and Docks until July 1951 when he assumed command of the Naval Construction Battalion Center, Port Hueneme, Calif. Two years later he became Director of the Pacific and Alaskan Division.

Captain McHenry served under Admiral Perry both in the Philippines during the war and at Annapolis.

A native of Philadelphia, he received his civil engineering degree from Villanova College and embarked on a career of construction and design of varied installations. Between 1927 and 1941 he was employed by the Pennsylvania Department of Highways; United Engineers and Constructors, Inc. (A.G.C.), Philadelphia; Electric Power Equipment Corp., Philadelphia; and the Construction Division of the War Department's Quartermaster Corps.

Capt. McHenry

Transferred to Navy

He was appointed a lieutenant in the Civil Engineer Corps Naval Reserve in 1940, advanced to captain in 1945, and was transferred to the U. S. Navy in 1946. He served at the Ingalls Shipbuilding Corp., Pascagoula, Miss., in 1941-42, then was officer in charge of construction battalion outfitting at the Bureau in Washington until 1944.

Captain McHenry was awarded the Bronze Star Medal for his work in planning, organizing and operating staff departments of the Hawaiian Area Construction Brigades which constructed extensive fleet facilities in 1944.

In 1945 he served successively with the 2nd and 7th Naval Construction Brigades, as officer in charge of construction at the naval operating base,

(Continued on page 25)

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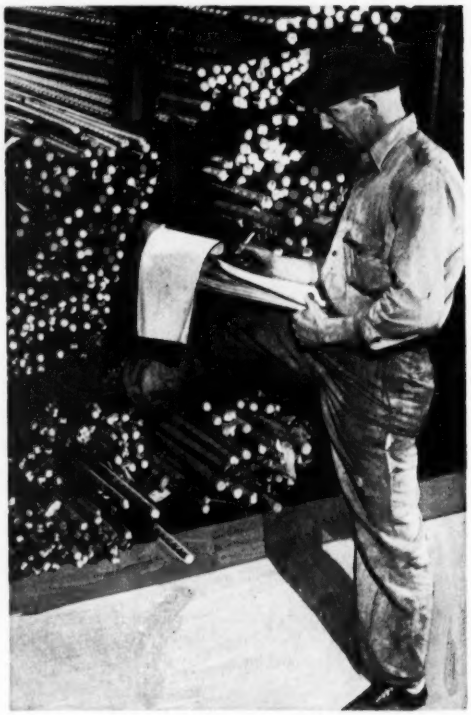

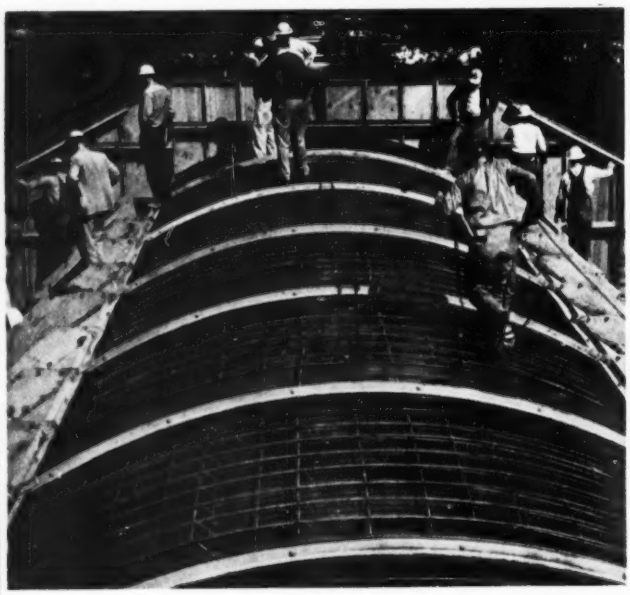

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Record October Construction

Expenditures of $3.2 billion for new construction during October set a record high for the month, according to preliminary estimates of the Commerce and Labor Departments.

Private outlays of $2.1 billion and public expenditures of $1.1 billion were both at peak for the month. Commercial, educational and religious building each rose to unusual October highs, while the decrease from September in highway work was less than seasonal, reflecting to some extent the unusually good weather. All other categories showed the changes that are usual for this time of year.

During the first 10 months of 1953, expenditures for all types of new construction totalled $29.1 billion, 7% above last year's rate.

Engineers Elect Terrell

Daniel V. Terrell, Dean of the College of Engineering, University of Kentucky, was installed as president of the American Society of Civil Engineers, succeeding Walter L. Huber, of San Francisco, at the close of the society's four-day annual meeting late last month in New York.

The Society's highest distinction, Honorary Membership, was awarded to Othmar H. Ammann of New York, Arthur E. Morgan of Yellow Springs, Ohio, John C. Page of Denver Colorado, and Charles M. Spofford of Boston.

(Continued from Page 22)

Leyte Gulf, and as Assistant Commander Construction Troops, Philippine Sea Frontier, for which he received a Gold Star in lieu of the second Bronze Star Medal in recognition of his ability in supervising planning and operation of staff departments, and reorganizing and deploying three bridgades.

After a brief period at Manila, he reported in 1946 as executive officer of the Public Works Department, U. S. Naval Academy, then as Public Works Officer on the staff of Commander Fleet Activities, Yokosuka, Japan, in 1949. In 1950-51 he was Deputy Chief of Operations in the Bureau of Yards and Docks; 1951-52, attended the Naval War College at Newport, R. I.; and in July 1952 became District Public Works Officer, 4th Naval District, Philadelphia.

Weeks Sets Up Business-Defense Agency

• Consolidates 5 Offices, Establishes 25 Industry Divisions

» SECRETARY of Commerce Sinclair Weeks has announced the establishment of the Business and Defense Service Administration, a consolidated agency within the Department of Commerce to provide a focal point for effective cooperation between government and business in promoting economic stability and growth.

The new agency continues the residual defense and mobilization functions of the former National Production Authority, consolidates five current departmental offices and establishes 25 industry divisions staffed by business experts from government and private industry.

The offices transferred to the BDSA are: the Office of Technical Services, the Office of Distribution, the Field Service, staff functions of the Industry Evaluation Board, and the Office of Industry and Commerce, including its Trade Association, Commodities Standards and Area Development Divisions.

Among the industry divisions are a Building Materials and Construction Division and an Agricultural, Construction and Mining Equipment Division. Directors of industry divisions will be appointed for six-months terms. Charles P. Redick is acting deputy director of the Building Materials and Construction Division.

BDSA will be directed by an administrator appointed by the Secretary who will be under the supervision of the Assistant Secretary for Domestic Affairs. Pending selection of an administrator, H. B. McCoy, a veteran career official, is acting administrator.

Geared for Practical Programs

Secretary Weeks said BDSA has been developed for "modern conditions and geared for practical programs of teamwork between government and business in serving the best interests of all the people through an organized exchange of timely ideas, information and services."

In the area of defense the agency's objectives will be to insure the development of practical mobilization programs, provide the framework for the integration of defense production and mobilization programs with industry's long-range plans for maintaining civilian production and employment on a sound basis, provide a nucleus organization capable of rapid expansion as an operating agency for administration of production and material controls in the event of an emergency, and foster the transition from emergency mobilization efforts to the operations of a free enterprise system.

Other BDSA objectives include: to provide other departments and agencies of the executive branch and the Congress with required information and judgment concerning the viewpoints and interests of business and industry, cooperate in assuring the consideration of the domestic needs of small business enterprises with the view to strengthening their position in the national economy, obtain the views and advice of business through the establishment of and consultation with, industry councils and industry advisory committees and through cooperation with trade associations.

Also to: encourage efficient and effective domestic distribution of goods and services to further the expansion of domestic markets necessary for optimum utilization of the nation's productive capacity; act as a clearing house for government technological information of interest to business; assist industry in the voluntary standardization of products, and cooperate with other agencies of government in programs to achieve economic stability, and growth, and with industry in the development of industrial and business programs having as their purpose a sound, prosperous and expanding economy.

Functions of the industry divisions are divided into defense production, mobilization preparedness and business services activities. In the last named category is included the evaluation of policies, plans, activities and orders of the Department of Commerce, as well as existing and proposed legislation affecting business from the standpoint of the workability of these measures in everyday business and industrial operation, and reporting to the administrator and the Assistant Secretary for Domestic Affairs.

BDSA will have three staff offices, the Office of Technical Services, a clearing house for government technological data of interest to business, and the Office of Small Business and Office of Distribution, which are being elevated to staff offices.

Members Plan Hawaiian Trips from L. A.

- Early Reservations Necessary for Post-Convention Tours

» JUDGING from the number of inquiries received, the prospect of a trip to Hawaii in connection with the 35th Annual Convention of The Associated General Contractors of America in Los Angeles, is intriguing quite a few members.

Dates of the meeting, for which R. A. Smith, general chairman, and the four California host chapters are hard at work, are March 1-4, 1954.

For those who find it easy to imagine themselves lolling on an island in the South Pacific while the sharp winds of March sweep most parts of the U. S. A., THE CONSTRUCTOR has gathered some information on air and ship schedules to Honolulu.

First of all, it cannot be emphasized too strongly that reservations for ship and plane travel to and from Hawaii either before or after the convention should be made NOW. The South Sea Islands are very popular at that time of the year and flights and sailings are invariably sold out months in advance.

Three steamship lines are available. The Matson line has the "S.S. Lurline," the Hawaiian Pacific line has the "S.S. Aleutian" and the American President lines have two ships, the "S.S. President Cleveland" and the "S.S. President Wilson." For those wishing to go by boat both ways, the "Aleutian" offers a sailing from San Francisco on Feb. 3 arriving at Honolulu Feb. 9, with a return passage leaving Honolulu Feb. 18 and arriving at San Francisco Feb. 24.

A post-convention trip on this ship is also possible by leaving San Francisco March 5 with the return sailing to 'Frisco scheduled for March 26 (sailing time approximately six days each way).

For those who may wish to travel by air, United Air Lines and Pan American Airways offer daily flights from Los Angeles and San Francisco. In addition, Pan American and Northwest Airlines have flights from Seattle and Portland almost daily.

It is possible to leave from one coast city and return to another. American President lines has a sailing from San Francisco on Feb. 6 from which return may be made by air direct to Los Angeles. Or a flight could be made to Honolulu from Los Angeles after the convention, with the return journey to San Francisco March 13-18 via American President or March 20-25 via Matson.

Of course, it is also possible to fly to Honolulu from Seattle, Portland or 'Frisco and return to Los Angeles prior to the convention, or to fly to Hawaii from Los Angeles after the convention and return by air to San Francisco, Seattle or Portland.

Round trip fare by plane is $302.40 ($225 by air tourist), one way is $168 ($125 by air tourist). Steamship fares vary between $220 and $2,250 round trip and $125 and $1,250 one way. All fares are subject to federal tax.

Package tours to Hawaii from the West Coast are offered by Pan American Airways, United Air Lines and the Hawaiian Pacific Lines. The other airlines and steamship companies will arrange for Hawaiian hotel reservations on request.

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The Judicial Review of Contract Disputes Is a Fundamental Right of American Justice

By C. P. Street

President, The Associated General Contractors of America

» *On behalf of all contractors signing construction contracts with the federal government . . . .*

we recommend that the Congress enact legislation which will establish by law beyond the possibility of doubt the fundamental principle of American justice that the parties to a contract with the federal government have the right of judicial review of disputes which arise.

The right of appeal from the decisions of contracting officers and department heads was so drastically limited by the decision of the United States Supreme Court in the *Wunderlich* case as to become meaningless.

The necessary clarification of the law can be accomplished by enactment of S. 24, by Senator Pat McCarran (D. Nev.), which was passed by the Senate on June 8, 1953, or the identical bill, H. R. 1839, by Representative Chauncey W. Reed (R. Ill.), chairman of the House Judiciary Committee, to which the bills have been referred.

In our opinion this legislation is essential, is in the public interest, and is needed as soon as possible to correct a current and serious inequity in our laws. Our reasons are as follows.

Review Now Limited to Fraud

The Supreme Court, in its decision on November 26, 1951, limited the interpretation of the disputes or finality clause of the standard government construction contract form to the extent that now there can be judicial review of the decision of a department head involving a question of fact *only* in the event that fraud can be alleged and proved. The Court added: "By fraud we mean conscious wrongdoing, an intent to cheat or be dishonest."

This strict limitation has, in effect, deprived contractors of the fundamental right of judicial review of disputes arising under government contracts.

Change Needed in Public Interest

We believe that there is an immediate need in the public interest for legislation which will clearly define the right of judicial review in contract disputes, because the *Wunderlich* decision has had three principal harmful effects.

1. The decision has deprived contractors of the fundamental right of judicial review of disputes arising under governmental contracts and has thus created an inequity in our laws currently governing contractual relationships.

2. The decision has made the administrative agencies of government which are parties to the contracts also the final judges of their impartial administration, giving the agencies both administrative and judicial functions.

3. The decision has left contractors at the mercy of government agencies. This has added another hazard to the business of contracting for the government. For each hazard the prudent general contractor must add a contingency to his bid. This increases the cost of construction

In our opinion, these harmful effects should be corrected at the earliest possible time.

The accompanying statement presents in concise language why The Associated General Contractors of America believes the passage of legislation assuring the right of judicial review of disputes arising under federal contracts is so important to the industry. The A.G.C. pressed for this measure immediately after the Supreme Court decision. House hearings are expected to be resumed in January.

Legislation Is Required

The establishment of a clear, definite and permanent federal policy on the right of judicial review of disputes arising under government contracts can be accomplished most effectively by legislative action.

No matter how satisfactory an administrative determination might be now in offsetting the effects of the *Wunderlich* decision, such administrative action could be changed at any time.

We believe that the Congress, rather than an administrative agency, should establish federal policy on such a fundamental principle of American justice.

The Supreme Court in its majority opinion pointed out that it was proper for Congress to act in this matter. Justice Minton wrote in part:

"The limitation upon this arbitral process is fraud, placed there by this court. If the standard of fraud that we adhere to is too limited, that is a matter for Congress."

The A.G.C. at its last two annual conventions has adopted resolutions urging the enactment of legislation to insure the right of judicial review as quickly as possible.

Fundamental Principles

Prior to the Supreme Court decision in the *Wunderlich* case, contractors did have the right to go to the Court of Claims with their disputes. The need for legislation to re-clarify that fundamental principle of justice is shown in dissenting opinions. Justice Douglas, with Justice Reed concurring, wrote in part:

"We should allow the Court of Claims, the agency close to these disputes, to reverse an official whose conduct is plainly out of bounds whether he is fraudulent, perverse, captious, incompetent, or just palpably wrong. The rule we announce makes government oppressive. The rule of the Court of Claims gives a citizen justice even against his government."

Justice Jackson, in his dissent, wrote in part:

"Granted that these contracts are legal, it should not follow that one who takes a public contract puts himself wholly in the power of contracting officers and department heads . . . I still believe one should be allowed to have a judicial hearing before his business can be destroyed by administrative action."

Conclusion

We recommend that Congress as promptly as possible enact S. 24, or H. R. 1839, which will establish by law, beyond doubt, the fundamental principle of American justice that the parties to a contract with the federal government have the right of judicial review of disputes which may arise.

We believe that the legislation is in the public interest in that it will correct an inequity and restore justice to the parties to a government contract, and that it will encourage more economical construction by removing one of the hazards of contracting with the government.

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Recent Labor Cases Affecting Construction

• U. S. Supreme Court Refuses Review of NLRB Case

By William E. Dunn

Manager, Labor Relations, The Associated General Contractors of America

» WITHOUT COMMENT, the U. S. Supreme Court last month refused to review an NLRB decision in the case *Swinerton and Walberg Co.*, (A.G.C.), and *Jabez Burns and Sons, Inc., vs. National Labor Relations Board.*

The NLRB in this case had held that construction contractors may be charged with unfair labor practices in the employment of workmen even if the NLRB is either incapable or unwilling to conduct representation and union shop elections in this industry.

The contractors (September CONSTRUCTOR, page 37) contended that such a one-sided policy constituted a violation of the Constitution which prohibits the taking of property or rights without due process of law.

The Supreme Court's refusal to review the case, without comment, does not necessarily imply approval of the NLRB or lower court decision, but makes such decision the final disposition of the particular case.

Joliet Contractors Association vs. National Labor Relations Board.—Also without comment, the Supreme Court refused to review a ruling by the Seventh Circuit Court of Appeals, Chicago, in the Joliet glaziers case in which the employers charged the union with a secondary boycott for refusing to furnish workmen to employers using preglazed sash. (September CONSTRUCTOR, page 37.)

The lower court held that the mere refusal to furnish workmen to an employer was not illegal since the employment relationship had not yet been established and therefore there could be no strike of men who were not yet employed.

The Supreme Court's refusal to review gave no indication of its approval or disapproval of the decision.

NLRB Decisions

The NLRB restricted its own jurisdictional standards in the Johnson Concrete Co. case (106 NLRB No. 219) wherein it refused to consider a county road as an instrumentality of interstate commerce.

The employer involved manufactured and sold concrete blocks and pipe in North Carolina to the state highway commission for the construction and maintenance of county roads.

The Board, with two new members, said "We do not believe that the concept of interstate commerce should be so broadly construed as to encompass so remote an activity as the construction of country roads." It distinguished this case from an earlier decision involving the "maintenance of the state highway system" where NLRB took jurisdiction.

Latest Lockout Decision

The NLRB ruled in the Marathon Electric Manufacturing Co. case (106 NLRB No. 199) that a discharge of employees who struck without notice in violation of a no-strike clause was not unlawful. The Board said that the walkout by the employees was an unprotected activity and that the subsequent lockout was not motivated by discriminating reasons on the part of the employer.

Until recently the NLRB has held that all lockouts are presumed to be illegal. This was changed in the higher courts and by NLRB itself last June when it ruled in favor of the Northern and Central A.G.C. Chapters who, with others, were charged with a "discriminatory lockout." (July CONSTRUCTOR, page 178.)

NLRB General Counsel Rules on Professional Employees Issue.—On October 9 the NLRB General Counsel issued an important administrative decision (Case No. 817), finding that under the Taft-Hartley Act it is lawful for an employer to refuse to bargain with a union which attempts to include professional employees in the same bargaining unit as non-professional employees "unless the majority of such professional employees vote for inclusion in such unit."

Illinois State Supreme Court recently held that portions of the state's minimum wage law were unconstitutional because they did not provide for judicial review of minimum wage determinations or adequate standards for the administrator.

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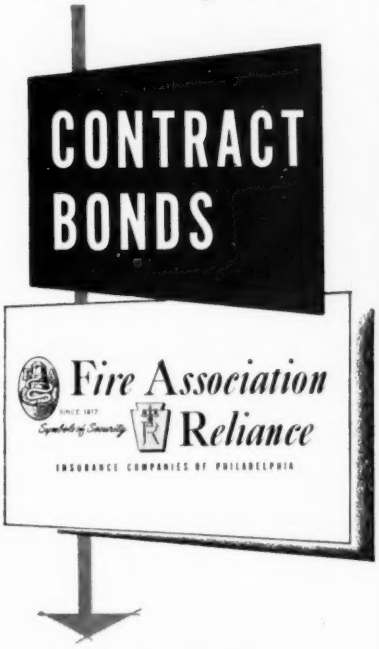

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LABOR RELATIONS

New Secretary of Labor

James P. Mitchell

James P. Mitchell, who took the oath of office on October 9 as the new Secretary of Labor, has had direct contact with the construction industry in his previous work.

From 1940 to 1943 he served as a member of the National Building Trades Stabilization Commission. This was established following an agreement between the federal government and the unions of the A.F.L. Building and Construction Trades Department. Mr. Mitchell helped to negotiate the agreement which outlined uniform working conditions on defense and war construction projects.

A.G.C. representatives sent congratulatory messages to him on his appointment. Richard J. Gray and Joseph L. Keenan, president and secretary of the Building and Construction Trades Department, attended the swearing-in ceremony. The appointment will be subject to Senate confirmation.

Although Mr. Mitchell told a press conference that he had not discussed with the President how much voice he would have in shaping and administering the Administration's labor policies, there was the expectation that he would have the opportunity to bring new stature to the office of Secretary of Labor.

The President told a press conference he believed that Mr. Mitchell was a man of great character, was interested in people and not just economic processes, had great experience in the labor field, and was a man of outstanding ability.

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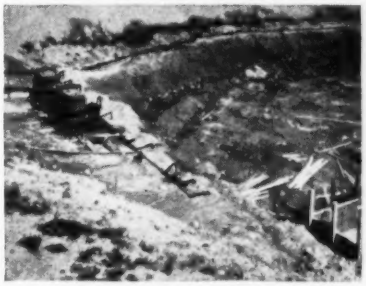

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AN ALLIS-CHALMERS REPORT

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With a two-range transmission and hydraulic torque converter, the Allis-Chalmers HD-20 is the only crawler tractor that is capable of exerting maximum drawbar pull *at all times* . . . under all load and terrain conditions . . . without gear-shift guesswork.

Whatever the job, the operator need merely make contact with the load and then open the throttle. As the load requirements change, the hydraulic torque converter *automatically* matches the conditions with exactly the right combination of speed and pull.

This eliminates most shifting . . . leads to far more work done in a continuous work cycle . . . far longer equipment life.

BULLDOZING — Hydraulic torque converter lets Allis-Chalmers HD-20 take full advantage of available horsepower, roll bigger loads, tackle tougher dozing jobs. With full control at the throttle, operator can work safely and efficiently, regardless of terrain.

PULLING — Hydraulic torque converter drive actually multiplies torque up to four and one-half times... develops tremendous drawbar pull to start the load smoothly . . . and automatically accelerates to the highest speed that conditions permit, in either high or low range.

PUSHING — Operator just makes contact, then opens the throttle and relaxes. The HD-20 automatically matches speed to that of pushed equipment, maintains steady contact while loading, sends load off to the fill at higher speed.

DIGGING AND LOADING — With the HD-20G, the operator crowds surely and steadily, using only throttle and bucket levers. With full horsepower always available even at creeping speed, he can work effectively in mud, on hillsides or the edges of banks.

OPERATOR COMFORT AND EFFICIENCY — He chooses speed range when he starts, and he can finish most jobs without further clutching or shifting (except for reverse). Result — he works easily, yet efficiently all day long.

LONGER LIFE FOR BIG EQUIPMENT — Hydraulic cushioning reduces shock and vibration, with less strain, less wear on both the HD-20 and its auxiliary equipment, whether mounted or drawn. That means *less* downtime, *more* production time.

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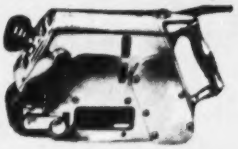

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APPRENTICE TRAINING

An Investment in Apprenticeship Pays Off
A.G.C. Official Tells Annual Ohio Meeting

» IF MORE EMPLOYERS could be convinced that apprentice training is a sound investment that pays dividends then the construction industry would improve its present training programs and begin new ones, an A.G.C. official told the Third Annual Ohio Apprenticeship Conference this month in Columbus.

Welton A. Snow, manager of the A.G.C. Building Division, told the conference Nov. 4 that when it comes to apprenticeship in construction, many contractors are either "lukewarm or entirely lacking in interest." Why is this, he asked, when the success of the industry must rely so heavily on an adequate supply of skilled craftsmen?

"The A.G.C. is giving every support possible to developing and maintaining sound and adequate apprentice training programs but we have failed and are failing to arouse an awareness on the part of many general contractors as to the vital need of training young men for the construction trades through apprenticeships," he added.

In referring to the "hard-headed businessmen" idea, Mr. Snow said that contractors must be shown that apprenticeship pays dividends if they are to help make it work.

Mr. Snow quoted passages from a Bureau of Apprenticeship manual entitled "Apprenticeship Pays Dividends" as follows: "In construction you contractors who train apprentices may be training your future key men, your foremen and other supervisory personnel, as well as journeymen, or you may be training construction men for the industry as a whole. In either case you are the beneficiary, for through your efforts you are increasing the number of skilled craftsmen upon whom you depend for major assistance in carrying on your construction work, efficiently and well. Isn't it 'good business' then to train apprentices? Isn't it a sound investment?"

As for the return on the investment, Mr. Snow added that apprentices start producing from the beginning and as they progress their production increases.

Other arguments for apprentice training include quality workmanship, lower production and hiring costs, and an opportunity for the young men who are accepted for apprenticeship to follow their chosen careers, Mr. Snow said.

Co-chairmen of the building and construction section's meetings were Forest L. Sollman, secretary, Miami Valley Carpenter's District Council, Dayton and Charles Davis, of the B. G. Danis Construction Co., A.G.C., also of Dayton.

Revised Masons' Standards

A revised edition of the "National Standards for Cement Masonry, Asphalt and Composition Apprenticeship" is now available to contractors and labor as a guide in the training of apprentices in these crafts.

Published by the Bureau of Apprenticeship with the cooperation of The Associated General Contractors of America and the Operative Plasterers and Cement Masons' International, the booklet was brought up to date recently to assure these apprentices of improved techniques which are a part of modern construction practices.

The booklet contains, in addition to the standards for each trade, examples of on-the-job work schedules and related classroom curricula. It also has a sample record-keeping form for recording the progress and ability of apprentices which should prove helpful in establishing an apprenticeship program.

Copies of this booklet may be obtained free of charge by writing to the national office of the A.G.C. or the publications branch, Bureau of Apprenticeship, Washington 25, D. C.

Forty-four carpenter and millwork apprentices in the Milwaukee area who had completed their four years of training were honored last month at a dinner and were awarded their completion certificates.

William F. Rasche, director of the vocational school they attended, advised the new journeymen to "continue your progress in your trades and take pride in your craftsmanship."

The graduation ceremony, the sixth of its kind to be sponsored by a joint labor, management and state industrial group, was held in the Schroeder Hotel.

More Apprentices Needed

Expansion of apprentice training and other skill improvement programs to keep pace with changing industrial techniques was urged last month by W. F. Patterson, director of the Bureau of Apprenticeship.

Speaking at apprenticeship completion ceremonies at the Eastman Kodak Co., Rochester, N. Y., he said:

"Although we may, with reasonable certainty, predict an increase in the automatization of production, we must not lose sight of the fact that the building and servicing of more complex production machinery resulting from such automatization will demand additional skills and versatility on the part of our workers.

Complicated Techniques to Come

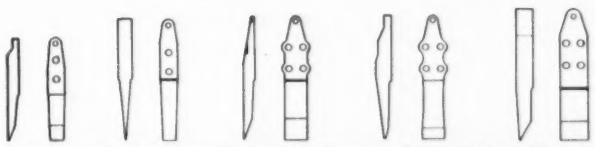
"Until comparatively recently, we have been able to expand production with basic materials readily available from vast reservoirs of natural resources. Not only have these materials been amply abundant, but they have required only relatively simple extractive processes to provide materials for manufacture.

"To maintain production in the future, we shall be forced to turn, for one reason or another, to materials that will require considerably more processing before they can be used as materials for manufacture. This, in turn, will result not only in greater complexity of extractive equipment, but in an increase in the skills and versatility that will be needed by our work force to turn out more complex products.

Base for Expansion

"Although we cannot predict the final outcome of the present unsettled world situation, we do know that we must be prepared for whatever may come. This means that we must give consideration to the skill requirements that would be demanded by a simultaneous expansion of our production and military forces. Production skills can be given quickly to those persons who would enter the work force under such an expansion only if the know-how to teach such skills has been developed. The need, therefore, for the extension of our ability to train our future workers and to expand the skills of our present journeymen, so that they may keep pace with changing techniques in production, is obvious."

for Added Efficiency!



Types of Standard Teeth for Various Conventional Operations

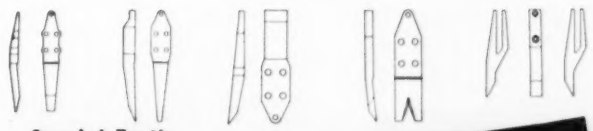
Corner teeth

Side cutting teeth

A bucket of recognized ability becomes a greatly improved "digger" when equipped with teeth of proper type and design.

Owen Buckets are designed to utilize the weight of the bucket to force the teeth into the material when dropped contributing to their reputation as exceptionally efficient digging buckets.

Owen teeth are designed especially for "deep penetration"—teeth that "grasp and hold"—teeth for "breaking down resistance at corners" to aid shell penetration—side teeth "to cut wall clearance" in trench excavation, etc.



Special Teeth

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What is drawbar horsepower?

Rubber-tired prime-movers have a sealed power train. They work through water, mud, dust without damage or wear to bearings and moving parts. Lubricants are not washed away or impregnated with abrasives.

Breaking up pavement, rock seams, etc., Tournatractor can tackle as tough jobs as any crawler. Loading may be slower, and cuts thinner on some of the heavy materials, but faster haul and return reduce cycle time.

Crawler tractors are rated by *drawbar* horsepower; competitive rubber-tired prime-movers are rated by *engine* horsepower. That makes things a bit confusing for you as a buyer. But, if you think about it a little bit, the different ratings become easy to understand.

The function of the crawler tractor was primarily to move a dead load from a standing start and then drag the load at a slow, crawling pace. That is exactly what "drawbar horsepower" ratings show. On that kind of assignment, the crawler tractor excels and can outperform anything of comparable engine horsepower on rubber.

To obtain a fair method of comparing crawler tractor efficiency, "drawbar horsepower" ratings are used as standardized measurement. This was, and still is, a reasonable standard for comparing crawlers. It is especially applicable because a vital factor in crawler engineering is to get as much horsepower as possible through the transmission and the 500 odd high-friction parts of the track-assembly . . . and to apply what is left in drawbar pull. Since the power loss is obviously extremely high, this measurement on the basis of "what is left" is extremely important in comparative rating of crawlers.

Old timers will remember that the track-tractor was originally developed to replace the horse and mule teams trained for steady slow-pulling on slip scraper and fresno work (range 100 to 200 feet). It was also applied to soft, muddy and rocky haul roads where wagons, wheeled scrapers and, later, small-tired trucks could not pull through. For this type of earthmoving work, drawbar horsepower was a reasonable measurement of production ability.

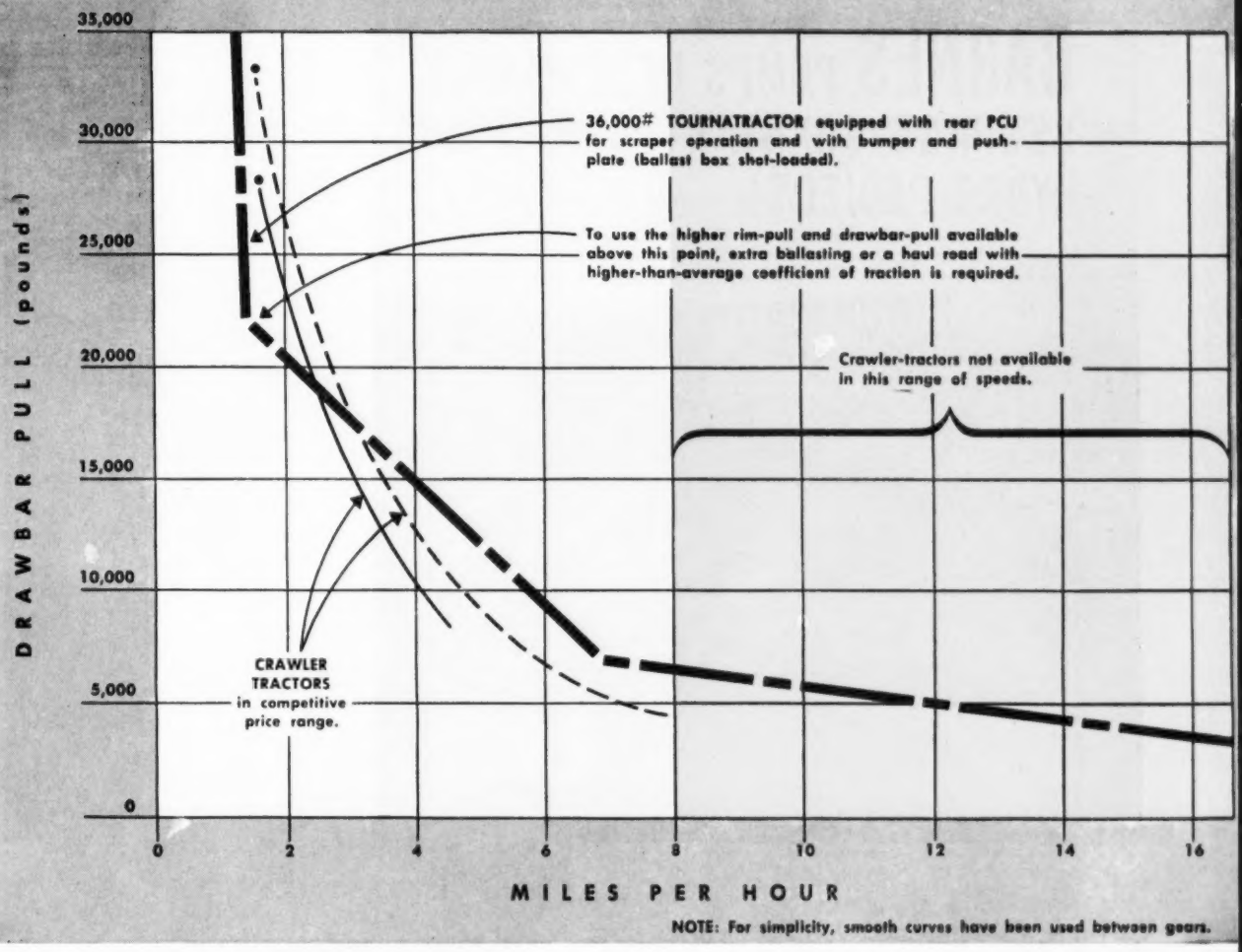
Then, as contractors sought ways for more speed and lower cost per yard in moving dirt, LeTourneau co-operated with the tire companies in developing bigger and bigger earthmoving tires. These gave off-road hauling similar speed advantages to those obtained by trucks, busses, and automobiles on the highways.

On sand jobs, rubber gives far better performance plus big savings in maintenance. In heavy sand states like Florida and Michigan, many contractors say they can't afford track upkeep and are switching 100% to modern LeTourneau-Westinghouse equipment. Abrasive wear is evidence of power lost.

Drawbar horsepower ratings are made on hard, firm footing with clean tracks. Remember what tracks look like after a few passes through mud like this? How much rated drawbar horsepower do you have left with mud packed into the 500 or more moving parts of a track assembly?

With instant finger-tip control on LeTourneau-Westinghouse prime-movers, you use power much more effectively than on the "strong-arm" manual system that controls crawler operation. You keep rolling on rubber . . . don't have to use the "standstill drawbar pull" used to rate crawlers.

Drawbar Comparison Chart



NOTE: For simplicity, smooth curves have been used between gears.

Published ratings on crawlers for drawbar-horsepower show maximum starting load with clean tracks on firm haul roads. While the crawler has an advantage on this "standstill" basis, you will note in this chart that, as soon as the load is underway, LeTourneau-Westinghouse Tournatractors give equivalent drawbar ratings to the slow-going track-tractors at higher hauling speeds. Under certain conditions, the crawler-tractor may slug it out in the mud to a little better advantage, but when moisture, etc., make the earth an acceptable construction material, the speed and drawbar of rubber-tired equipment produce a winning team for "lowest-net-cost-per-yard."

Big tires permitted the development of 2-wheel and 4-wheel prime-movers. This, too, changed dirtmoving to a competition for speed and large carrying capacity, rather than competition for a greater "standstill" push or pull.

Today efficient dirtmoving engineering measures the maximum load that can be kept moving at profit-making speed, rather than the maximum rating for starting a standing load. You will remember that the ox could start a heavier load than the horse, but the horse was a faster, more profitable work animal and became the most popular prime-mover of its day.

The same changeover is happening today in mechanized dirtmoving. The crawler on good track footing can still start a heavier load than a rubber-tired prime-mover. High-speed tractors on rubber, however, work so much faster that they move more dirt at the lowest net cost per yard and continually take over a larger percentage of jobs from the slow-going crawler-type tractor.

Thousands of owners of LeTourneau equipment have proved this for themselves on jobs all over the world. Ask your LeTourneau-Westinghouse Distributor for job studies that prove it. Then check it with a demonstration on your work. You can't afford to keep an "ox" to start dead loads, when your real problem is in keeping your loads hurrying along at a profitable speed.

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BARNES PUMPS HELP HANDLE SEEPAGE ON GIANT CANADIAN HYDRO PROJECT!

5,500 men working on day and night shifts — two 5½-mile-long supply tunnels, 45-ft. in finished diameter, extending under a densely populated area . . . a 2¼-mile canal designed to carry 40,000 c.f.s. . . . a new power house with installed capacity of 1,200,000 h.p. . . . an expenditure of $300,000,000 — these are highlights of the gigantic project now under way at Niagara Falls which is being rushed to completion by The Hydro-Electric Power Commission of Ontario to meet the growing demands for power in a booming industrial area.

When completed in 1956, this generating station located in the side wall of the Niagara gorge and six miles below the Falls, will stand as another sound engineering achievement attesting to the progressiveness of The Hydro-Electric Power Commission of Ontario and the manner in which it meets its obligations as a public servant.

The Barnes Manufacturing Co. is honored to have its pumps selected for the important work of helping control surface and seepage water in the construction of this project.

Barnes 90M Self-Priming Centrifugal Pumps Operate 24 Hours a Day in Helping to Control Surface and Seepage Water in Canal Section of Vast Hydro-Electric Power Commission's Sir Adam Beck-Niagara Generating Station No. 2.

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Engineers Change Airfield Flexible Pavement Design

• Accept Recommendations of A.G.C. Committee

» THE Corps of Engineers has accepted changes and modifications to its Engineering Manual for Airfield Flexible Pavement Design and the Guide Specifications for Flexible Pavement, Bituminous Binder and Surface Courses recommended by The Associated General Contractors of America.

The changes were suggested by a special A.G.C. committee headed by N. K. Dickerson, Jr., Dickerson, Inc., Monroe, N. C. The committee was appointed by President C. P. Street after the Corps agreed that A.G.C. be allowed to make the same type of study of the above-mentioned specifications and requirements as was made by the association last year on the Corps' concrete guide specifications and placement manual.

Formal presentation of his committee's requests was made to the Corps by Chairman Dickerson after the items, which dealt with compaction and density requirements, job mix formulas, use of local materials, payments for test strips and aggregate requirements, were discussed with representatives of the Airfields Branch of the Corps.

In acknowledging receipt of a report of this discussion, Brig. Gen. David H. Tulley, assistant chief of engineers for military construction, said:

"It is noted with a very great deal of satisfaction that out of the 25 items presented for discussion on your agenda, only five appear necessary for further comment. We would be glad to discuss these or other items with you at your convenience.

"In order that our field organization may be made aware of the items discussed and conclusions reached, we are publishing a summary of this conference in a forthcoming issue of our Military Construction Engineer Bulletin. Should any changes take place in later conferences, they will be reflected in subsequent issues.

"We feel gratified at the progress made at this conference and assure you of our willingness in participating in further discussions of this nature."

Among the items discussed and decisions taken were:

Marshall Test and Requirements—The Corps declared it was not its intent to require the same specifications for roads, streets, sidewalks, parking areas, etc., as are called for in airfield pavements, and said it would so advise those of its district offices which it found were doing so.

In drawing this practice to the attention of the Corps, the A.G.C. committee had pointed out that it results in increased cost to the government and in many cases, almost impossible attainments for the contractor due to restrictive areas for compaction and densities. The committee also pointed out that Guide Specifications require test sections on all pavements, whereas it felt that this was not intended for other than airfield pavements.

In regard to the committee's recommendation that maximum use of local materials be made if the mix designs permitted such local materials, the Corps agreed "in so far as consistent with meeting the requirements of the Air Force." It stated that recent revisions of surface course specifications were for that purpose. The Corps said, however, that it could not expand some gradation bands and eliminate the requirement for the 20 mesh screen, as requested by A.G.C.

20 Mesh Screen Kept

"It has been determined that the requirement of the 20 mesh screen was important and could not be eliminated from the specification," the Corps stated. "In order to produce the densities and imperviousness required by the Air Force, it is considered necessary to keep the present gradation requirements, however, further detailed supporting data by A.G.C. would be accepted for consideration."

The Corps denied a request to permit a contractor to design his own mix based on the peculiarities of his own plant, but said it would permit the contractor to submit a suggested job-mix formula provided it conforms to the specifications, the contracting officer to decide whether the contractor's formula meets requirements.

Regarding the committee's request that test strips be paid for by the ton and that the contractor not be paid for tonnage that fails to comply in respect to gradation, asphalt content and sections on which practical rolling is not conducted, the government felt that it must retain the present specification provisions.

In answer to other suggestions regarding the Marshall Test and requirements, the government took the following action:

Agreed to include in the Guide Specifications that the Marshall Test shall be conducted as set forth in the Engineering Manual.

Stated that all currently used gradations listed in the Guide will meet the Marshall properties for the intended use.

Agreed that the Guide should list the required Marshall properties on binder courses if this test will be used.

Said it did not believe that ASTM gradations in general use throughout the aggregate industry would in all cases meet the required Marshall properties for use in asphalt mixes.

On other items the Corps acted as follows:

- Design of alternate bids on equal basis and award on basis of low bid—The Corps said the Air Force reserves the right to decide which type of pavement to use.
- Expansion of bands on binder to utilize surface course fine aggregates—The Corps will be glad to study reports from contractors covering use of the common aggregate.
- Specific gravity test for mineral filler—ASTM D854-45T or other—The Corps will include this in a revision of the Guide.
- A standard extraction test and sample sizes for uniformity—To be included in the revised Guide.
- Reductions in density requirements for binder and surface courses—Present densities meet requirements of Air Force operational use, the Corps said, adding however, that it will be glad to have any additional data bearing on this subject.

Those on the A.G.C. committee in addition to Mr. Dickerson, are: B. B. Armstrong, Armstrong & Armstrong, Roswell, N. M.; C. P. Ballenger, Jr., Ballenger Paving Co., Greenville, S. C.; J. P. Frazier, Harrison Construction Co., Pittsburgh; R. J. Morrison, Dickerson, Inc.; H. C. Parish, Parish Brothers, Benicia, Calif.; C. R. Ralph, Kaw Paving Co., Topeka, Kan., and J. M. Sprouse, A.G.C. national staff, committee secretary.

BuRec to Support A.G.C. Contract Stand

- To Side With Association Before Comptroller General

» THE Bureau of Reclamation will support A.G.C. in its opposition to the awarding of government construction contracts at an adjusted price where such adjustment has been because of a plea of error on the part of the low bidder. This was decided by Bureau representatives at a recent meeting with the A.G.C. Task Unit for Bureau of Reclamation Specifications in Denver, Col.

The association's stand on the subject was the subject of a resolution at the midyear meeting of its Governing and Advisory Boards in Chicago in September. The Bureau has agreed to lend its support to the resolution at a proposed conference of the A.G.C. with the Comptroller General's Office.

At the Denver meeting the Bureau asked for A.G.C. suggestions which would enable it to obtain architecturally acceptable concrete surfaces free from objectionable stains, blemishes, form marks, etc., in exposed locations without using curing compounds and at a minimum cost to the government. The Bureau revealed they are currently considering an addition to the concrete specifications which would be established as Finish F3a and would be an extension of Finish F3.

When determined by the contracting officer that F3a is necessary, it would be established as a pay item unless it is determined that imperfections in F3 are due to the negligence of the contractor, Bureau officials said. There was no A.G.C. objection to this inclusion in the specifications.

Members of the Task Unit reported that the reaction of contractors to the new provision for determining equipment rental allowances for extra work has been unanimously favorable.

When informed that the Bureau is considering a proposal for the installation of structural steel items on the basis of theoretically computed weights as compared to actual weights as determined from freight bills and other means, A.G.C. representatives requested that the present provisions calling for theoretically computed weights, shop weights or railroad weights be left unchanged.

Bureau officials reported that their recommendation to the Commissioner of Reclamation that the 10% presently allowed for both overhead and profit on extra work for the Bureau be increased to 15% is still under consideration.

It was reported to the Task Unit that its request that the Bureau make payment for contractors' bonds as soon as possible after the work is begun and if possible set up bond payments as a separate pay item has been denied by the Bureau. The denial was based, it was declared, on a decision of the Comptroller General that payment or partial payments for the cost of the bond cannot be justified because the bond actually is a qualification for performing the work and not for material delivered, preparatory work or a progression of the work.

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speeds the wet jobs

● You get big loads fast with this Wellman Perforated Dragline Bucket because excess water goes out while gravel stays in on jobs such as illustrated.

Built of special alloy steel—all welded for strength plus light weight. You can work faster with less maintenance with Wellman dragline buckets.

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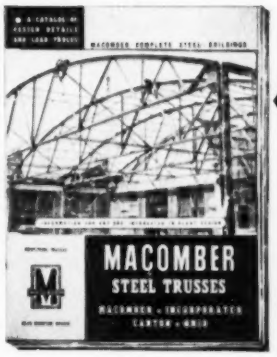

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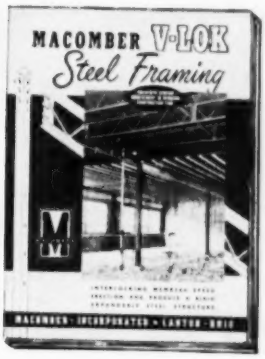

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FOR LIGHT OCCUPANCY — V-LOK Steel Framing catalogs standard structural members which interlock in a rigid frame for stores, shopping centers, ranch type homes, schools, warehouses, supply depots, storage sheds, parking garages and similar structures.

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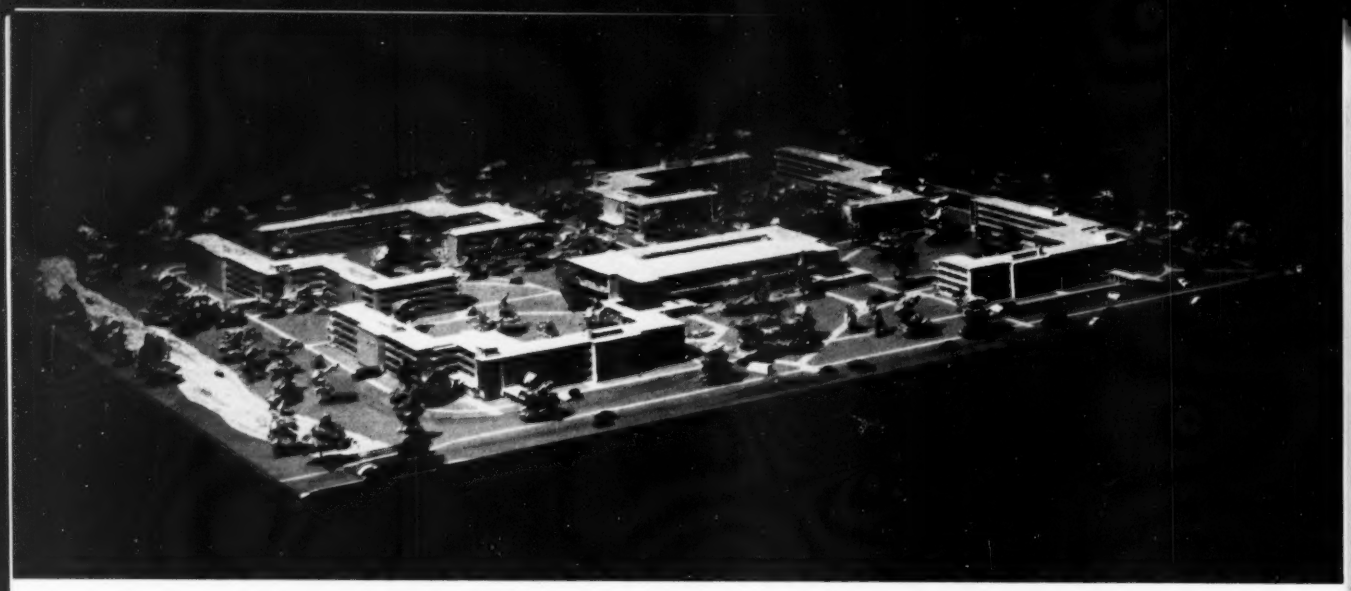


The general scope of the project is shown in this perspective of the Men's Dormitory Group at Michigan State College, Lansing, Mich.

Prestressed Panels Save Time In Erection of College Dormitory

- Panels Formed of Bolted Concrete Blocks
- Manufacture and Assembly a Matter of Minutes

» PRESTRESSED concrete exterior wall panels which can be manufactured in as little as 15 to 20 minutes and erected in one to five minutes are being used in dormitory buildings at Michigan State College to shorten construction schedules by months.

While this particular job is believed by the general contractor, the Christman Company, A.G.C., of Lansing, Mich., to be the largest individual installation of prestressed wall panel construction in this country, it is the opinion of the architects and engineers involved that the possible applications of this technique have thus far hardly been touched and merit serious study.

Common practice from ancient times to the present has been to construct masonry walls entirely by hand process, using small units which could be grasped in the hand and moulded into place with mortar. The tools used have been unchanged for centuries.

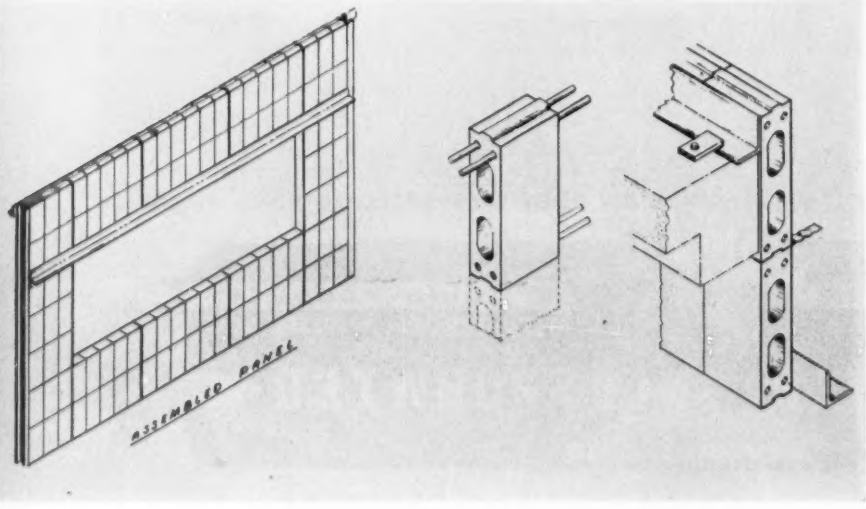
Almost every other operation in modern construction has been modified and improved by the application of factory methods which resulted in the speedier production of better and more uniform products.

These factors were given consideration in the design of wall panels for the men's dormitory group now under construction at Michigan State College at Lansing. Collaborating in this study were the architect, Ralph R. Calder, of Detroit, members of his staff, D. S. Budzynski and Lyall Askew, his structural engineer, Ray W. Covey, also of Detroit, and Ralph W. Adams, Sr., structural engineer and consultant of the Adams Concrete Products Co., of Ypsilanti, Mich., which manufactured the panels as they were finally designed by the structural engineers.

Preliminary studies made by this group in the summer of 1952 indicated that prepared panels would be necessary to meet proposed construction schedules. The problem was to design a panel which could be made rapidly in large sizes and of such character that it could be securely attached to the structural frame of the buildings as soon as they could be erected.

It was felt that pre-assembly of the panels would take months off the construction schedules, save much valuable space in the building and compress into a single factory product many operations ordinarily performed under difficulties in the field.

The studies showed that most or all of the features desired could be achieved by making lightweight con-



Isometric sketch of the structural wall panel used in the project. Each panel is composed of tongue and grooved blocks which fit together at horizontal joints. Adjoining blocks are made to fit in close contact by grinding to precision tolerances in a large double grinder.

Prestress of the whole panel is accomplished by placing the blocks upon a jig, threading bolts through holes in the blocks, drawing up the nuts at the ends and setting them by instrument.

crete units in panel form by the Stresterete process, whereby specially moulded blocks made in the automatic block machine are further prepared for panel assembly. All concerned felt that the next step was to prepare a pilot panel, and accordingly the Adams Concrete Products Co. secured the necessary block units from the Basalt Rock Co., of Napa, Calif., built a jig of proper dimensions for the dormitory and constructed a panel embodying the desired features.

The panel, whose details are shown in accompanying drawing, is composed of tongue and grooved blocks which fit neatly together at horizontal joints. The blocks are ground to precision tolerances in a large double spindle grinder with the result that adjoining blocks fit in close contact.

The blocks are laid upon a jig with steel members extending vertically at the outer edges of the panels and with intermediate plates at selected joints and then the whole panel is placed under prestress by threading bolts through holes in the blocks and drawing up the nuts at the ends which are then set by instrument. There are 28 bolts in each panel and each bolt is pretensioned to a stress of 3,000 pounds.

In this manner prestress of 42 tons is applied to each panel which then becomes an exceedingly strong and stiff plate. Thereafter it can be handled by cranes exactly like a steel frame in a structural plant. The complete job of fabrication and installation is handled by the manufacturers acting as subcontractor to the general contractor.

By means of the light steel vertical members all window openings are framed in. Secondary operations provide for installation of shelf angles, brick ties and waterproofing coats.

Essentially then, there is developed a wall panel of masonry materials which can be manufactured in quantity while the preliminary foundation work is in progress on any building. The panel construction can proceed during cold or inclement weather which would stop most other field operations.

The complete enclosure of the building is done by crane and is a very rapid operation. Adjoining panels are bolted together and at the floor level all loads are transferred to a shelf angle by welded connections. Thus all panels hang from the structural frame by the top edge. At selected points connection is made to anchor bolts.

The panels used on the project are four inches in thickness. Lightweight aggregate with excellent insulating quality is used. Six and eight inch blocks are also available for use with still larger panels where these are desired. This assures an effective cavity wall construction as there is a full one-inch space between face brick and the Stresterete, the latter having about 50 per cent air space provided by cells.

Trucking No Problem

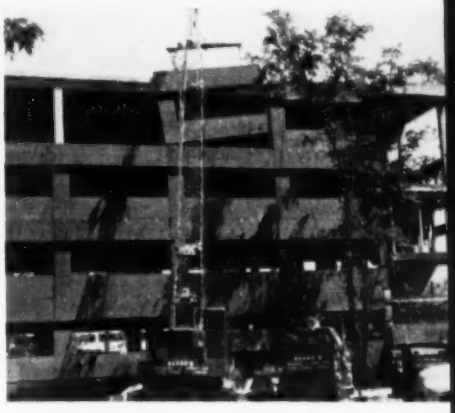
Inside finish consists of a sealing coat and one inch of insulating plaster. Size of panels on this job runs from 130 to 200 square feet per panel. At the fabricating plant they are handled by two five-ton traveling cranes. Trucking is no problem and the haul in this case was 75 miles. Normally the field operation consists of taking the panels directly from the truck and setting them in final position in one operation. Manufacture of the panels takes from 15 to 20 minutes per panel and erection from one to five minutes under favorable conditions.

The group of architects and engineers connected with the project feels that they have "only scratched the surface of the possibilities" in the application of this method of exterior wall construction. They pointed out that panels can be made extending from foundation to the roof of buildings up to at least 30 feet in height. Structural steel columns, it was declared, can be incorporated right into the panels to support floors or roofs and many other features developed as desired.

With such panels available, the group felt that work in the field will in time become more of an assembly operation than one of manufacture on site, resulting in greater speed of construction as a whole.

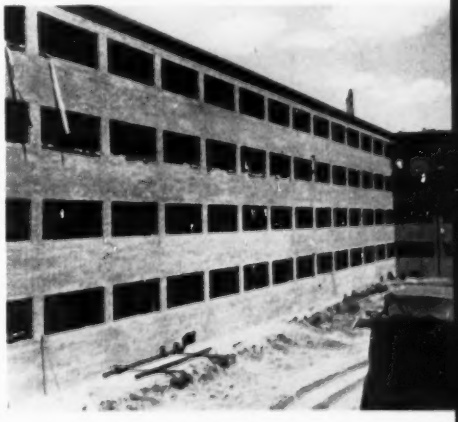
Defense Housing Progress

About three-fourths of the programmed defense housing being constructed privately is under way, and more than half of it has been completed as of Sept. 30, the Housing and Home Finance Agency reports. Of the 99,614 units scheduled for 210 areas, 93,400 had been approved, 73,466 had been started, and 54,561 units had been completed. Builders and sponsors had applied for 391,092 units.



Above, a panel is taken directly from the truck and set in final position in a single operation which normally takes the manufacturer, acting in its capacity as subcontractor to the general contractor, the Christman Co., from one to five minutes.

Center photo shows a completed wall ready for facing material. All window openings are framed in by light steel vertical members. Bottom, panels with face brick applied.



TRAVERS DAM:

$20,000,000 job expected to return $25,000,000 a year

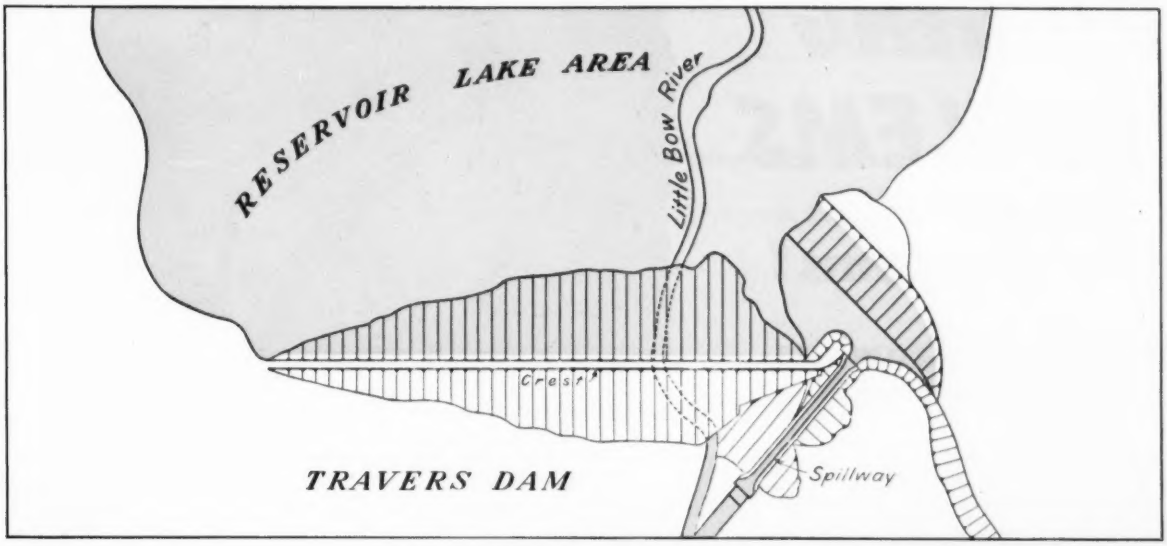
A Cat DW20 with No. 20 Scraper loads earth on the Travers Dam site. ▲

Haul roads are maintained by this No. 112 Motor Grader. The naked hills are typical of this arid region. ▼

A region of arid wasteland will be brought under irrigation by the Bow River Development, now taking shape in southern Alberta, Canada.

At an estimated over-all cost of $20,000,000, the project will ultimately bring water to 240,000 acres, with a potential yearly crop yield valued at $25,000,000—a 125% annual dividend on the investment!

Largest single structure in the development is a big earthfill dam across the valley of the Little Bow River,



This Caterpillar D311, mounted on skids, generates power for lighting the dam at night. ▶

southwest of Travers, Alberta. When completed it will contain about 4,500,000 cubic yards of material. Rising 110 feet above the original river bed, the dam will be 3030 feet long at the crest and 940 feet thick at the base. It will impound a reservoir lake 15 miles long, containing 250,000 acre feet of water, and forming a connecting link between Lake McGregor Reservoir and Little Bow Reservoir.

As on nearly all other big earthfill projects, Caterpillar* equipment is being used for a large part of the job. Emil Anderson Construction Co., Ltd., is moving earth from the borrow pit to the dam crest with Cat* DW20 Tractors and No. 20 Scrapers. The big yellow units average 21 cubic yards to the load and make 12 trips per hour on a 1200-foot haul. Part of the haul has been up a 20% grade, but each scraper has averaged 1000 yards a day with much less down time than equipment of other makes.

Caterpillar machines in the Anderson fleet also include D8 Tractors with No. 8A Bulldozers, Cat Motor Graders and a D311 Electric Set, used to floodlight the dam for night work. One of the reasons for the high production record set by this equipment is the prompt, reliable parts and repair service provided by the local Caterpillar Dealer.

▲ A D8 Tractor with No. 8A Bulldozer handles big blade loads on the Travers Dam fill.

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Reclamation Bureau Reorganization Begun

• Geared to Moderate Program; Denver Operations Emphasized

» A REORGANIZATION of the Bureau of Reclamation's structure which will see all the technical functions of the agency centralized once again in Denver, and the abolition of all district offices in favor of "project offices" in the vicinities of large projects, is now under way.

The streamlining, resulting from recommendations of a "survey team" which has been studying the bureau for two months, is being made to gear the agency to a more modest construction program than had been visualized by its planners in previous Administrations, officials said.

At a press conference October 28, Assistant Secretary of the Interior Fred G. Aandahl said the bureau was established along its present lines with the idea that it would handle annual construction programs running from $500 million to $750 million. The agency never handled more than $300 million of construction in a year, even at the high point of appropriations, he said, and its work is now only about half that amount.

Mr. Aandahl added, however: "My personal opinion is that the reclamation program has been contracted to about as small a point as it can go. We hope for a strengthening of it in the near future."

Three Assistant Commissioners

The Commissioner's office in Washington will be concerned principally with policy, administration, liaison with Congress and other agencies.

Technical phases of operation and maintenance, project planning and design, and construction will be centered in the Denver office under Chief Engineer L. N. McClellan, who now has the additional title of assistant commissioner.

Two additional assistant commissioners will be located in Washington to head up operations and administration. Mr. Dexheimer designated Harvey McPhail as assistant commissioner for operations, but had not named the other official early this month.

Other Principal Changes

The six present regional offices will be retained, and the Sacramento, California, office which had been designated a projects office several months ago, again becomes the regional office of Region 2. The secretary did not accept the survey team's recommendation that the Missouri Basin Regions 6 and 7 be combined.

District offices as such are to be abolished, but project or consolidated project offices will be established in localities convenient to the Bureau's work as long as needed. Most district offices probably will become project offices in the same locations.

The delegation of construction contract responsibility to the regional directors, which had been recommended by the survey team, "shall be accomplished over a period of time, but as expeditiously as reasonably possible, with delegations to specific directors only when the Commissioner of Reclamation feels that the regional staffs are qualified to handle such delegation," Mr. Aandahl said.

No Big Personnel Cut

No drastic personnel cut will be involved, and any reductions will result only from consolidations or omission of work found to be unnecessary. It is desired that employees perform proportionately larger amounts of work with more efficiency, Interior officials said.

The Bureau already has contracted its staff by 2,175 persons in the last six months, and presently has 10,909 employees. The reductions in field and construction offices amounted to about 500 persons.

Of the 280 employed in the Bureau's Washington office, no more than about 40 may be involved in transfer to Denver in the near future.

Commissioner Dexheimer gave reporters this brief outline of impact on the various regions:

Region 1 will undergo "some consolidation and streamlining."

"Not much" change will be necessary in Regions 2, 3 and 4.

In Region 5 (Amarillo, Tex.), some reductions will be made because of the lack of appropriations to go ahead with planned projects.

Regions 6 and 7 will require "quite a bit of consolidation."

Design and Construction

The survey team's report, full text of which was released to the press, praised the Bureau's construction standards, but cautioned against some examples of "over-design," and recommended rotation of engineers to projects to increase their competence.

It stated, in part:

"High standards of construction must be maintained by the Reclamation Bureau. Major structures now in service have met the test of time and use. The efforts in the laboratory and the design department to improve the utility and the economy of the structures required in future development have been productive of important improvement and should by all means be continued.

"However, the tendency to prepare the most perfect designs possible, regardless of cost, for all works, even of moderate importance, should be guarded against. Specific examples of apparent over-design, including small pumping plants, canal structures, garages, etc., were noted in each region. The embellishment of even the most important works should not be carried to the extreme. The practices warned against tend to destroy the financial feasibility of projects and to 'price the Bureau out of the market.'

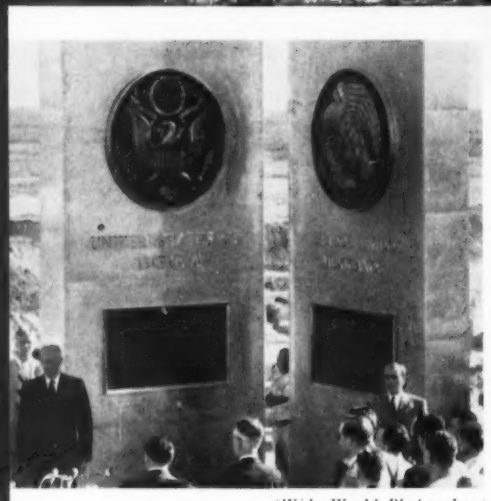
Urge Engineer Rotation

". . . The team was rather startled to hear the statement that high grade design men in the Chief Engineer's Office 'had not seen a construction job in 20 years.' Whether the statement is exaggerated or not, there is evidence that problems of construction are not always given proper consideration in the preparation of designs. It is beyond question that experience in field construction is valuable and desirable as a qualification for a designer of important structures. . . .

"The practice of rotating engineers among the major functional phases of Reclamation activities should result in increasing their competence in any one of the fields and the team recommends the re-initiation of this practice. An effort should be made to seed engineers with construction experience among the specialists in the Assistant Commissioner and Chief Engineer's office."

In a lengthy discussion of why it recommended shift in construction responsibility and contract administration from the Chief Engineer to regional directors, the team stated in its report that it would reduce the workload at Denver and "eliminate conflict" in responsibilities for construction operations and contract administration.

(Wide World Photos, Inc.)



(Wide World Photos, Inc.)

Falcon Dam Dedicated by U.S., Mexico

Above, an aerial view of the new $46,000,000 Falcon Dam on the Rio Grande, 75 miles southeast of Laredo, Texas, which was completed last month and dedicated by President Eisenhower and President Adolfo Ruiz Cortines of Mexico. They are shown at left standing under the seals of the U. S. and Mexico on the international boundary during the dedication ceremonies. In the upper photo, the dam stretches across the background. The spillway with its six steel gates is at right center. To the left of the spillway is the American powerhouse and at left center on the Mexican side is the Mexican plant. Both plants together will generate more than 250,000,000 kilowatt hours a year. The lake created by the dam will extend 60 miles when full. A total of 600,000 acres on both the American and Mexican sides will be irrigated, making it the largest water conservation project that bestrides an international boundary of the U. S.

Contracts for both the American and Mexican sides of Falcon Dam were awarded in November, 1950, to seven A.G.C. firms: C. F. Lytle Co., Iowa, sponsor of the undertaking; Amis Construction Co., Okla.; San Ore Construction Co., Kan.; Massman Construction Co., Mo.; Foley Bros. Inc., Minn.; Edward Peterson Co., Neb., and Tellepsen Construction Co., Texas.

Tunneling in The South

The vehicular tunnel business is picking up in the South. On the heels of the opening of the $10 million Baytown, Texas, tunnel this fall, it was announced that plans and specifications have been completed for two tunnels in the New Orleans area by Palmer and Baker, Inc., consulting engineers, Mobile, Ala., and that a third tunnel is being designed by the firm for Corpus Christi, Texas.

The two tunnels to be built under the Intracoastal Canal near New Orleans are said to represent new engineering departures for both the South and the nation, and the first completely automatic subaqueous traffic tunnels anywhere in the world. Both will be toll free, financed jointly by parish (county) and federal funds.

Bids for construction of the Harvey Tunnel, to be the South's first underwater four-lane traffic tunnel, and estimated to cost $5.5 million, will be advertised November 15. It will be 1,080 feet long from portal to portal and 1,894 feet long from grade point to grade point. It will be a concrete box section with two roadways, each 22 feet between curbs, and will be an integral part of the expressway along the Mississippi's west bank which will link U. S. Highway 90 with the projected Mississippi River bridge leading into downtown New Orleans.

A Palmer and Baker engineer said the contractor will have the choice of floating the center 15,000-ton section for the Harvey tunnel into place and sinking it into position, or of building it in the dry by coffer-damming across the canal in two steps and closing off half the canal at one time.

The companion Belle Chasse tunnel, estimated to cost $2¾ million, will be under the new Algiers Canal cutoff running from the Mississippi to the Harvey Canal. It will be 1,933 feet long with 800 feet of the tunnel under water, and will hold one 22-foot roadway. Since the cutoff at this site is being dredged, the tunnel will be built on dry land below the level of what is to be the canal's bed.

Palmer and Baker also has the design contract for an $11.5 million, four-lane vehicular tunnel under the ship channel at Corpus Christi, to replace an existing bascule lift bridge which now carries about 20,000 cars a day plus tracks of the Southern Pacific Railway.

This project will be a toll tunnel 3,665 feet long from grade point to grade point, and will be financed by revenue bonds.

PILE DRIVING FOR THE WORLD'S LONGEST SELF-ANCHORED Suspension Bridge

The new Paseo bridge over the Missouri River at Kansas City—the longest of its type in the world—has four river piers, the tallest of which extends to a depth of 104 ft. below normal river level.

These piers rest on concrete caissons sunk by compressed air pressure up to 52 psi inside of steel sheet pile cofferdams through dredged sand islands. V-shaped sheet pile breakwaters were also built up-stream to prevent scouring of the sand islands and to protect the cofferdams from floating ice and debris.

Here, as at many thousands of other foundation jobs, the contractor used a McKiernan-Terry Pile Hammer to assure speedy, economical pile driving. You, too, will find that these powerful, dependable hammers will help keep job time and costs within estimates.

Write for catalog describing the entire McKiernan-Terry line of 16 types and sizes of double-acting hammers and extractors and single-acting hammers.

McKiernan-Terry 9-B-3 Double-Acting Pile Hammer driving cofferdam steel sheet piles at one of the sand island and ice breaker sections of the Paseo bridge. Consulting Engineers: Howard, Needles, Tammen & Bergendoff. Contractors: Massman Construction Company and Kansas City Bridge Company

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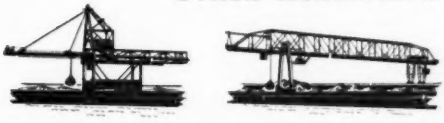

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ESTABLISHING MOUNTAIN-TOP BASE, a helicopter and a TD-24 put men, machinery and supplies on mile-high pass as first step in efforts to build road down to meet section coming up from each side. TD-24 pulled yarder, winch, and compressor into pass after bitter 7-day fight.

1 RAISING KENNEY DAM to fill the Grand Canyon of the Nechako River, workers sluice down some of the 3.8 million cubic yards of earth and rock it will eventually contain. Dam will form a reservoir with twice the capacity of Grand Coulee. TD-24 in foreground strips blasted rock from canyon wall abutment.

2 HEADING OPERATIONS at Kenney Dam are (left to right) Alcan Resident Engineer Harry Jomini; General Superintendent "Hak" Nielsen and Project Manager Jack Bremner, both of Mannix, Ltd., sub-contractor for Morrison-Knudsen Company of Canada, Ltd. 110 miles west, dammed-up waters will be diverted through mountains and dropped a half mile to run turbines in sea-level powerhouse.

3 DRIVING TEN-MILE TUNNEL through mountain is done from four headings. Here, half a mile above ocean-level valley, aerial tramway has delivered TD-24 to tunnel portal for working debris down mountain. 2,600 feet below, eight-story powerhouse inside mountain is being mucked out by a TD-24 and a TD-9.

Red TD 24 Pioneers New Frontier

59 International TD-24s spearhead largest integrated engineering program in history for Alcan (Aluminum Company of Canada, Ltd.) on Project British Columbia

A fleet of 59 hard-hitting International TD-24s is blazing a new frontier across 5,000 square miles of wilderness in British Columbia.

Twenty-four hours a day, they're on the go for Morrison-Knudsen Company of Canada, Ltd., prime contractor for most of the giant development that includes:

Building the largest sloping clay core dam in the world

Driving a subway-size tunnel ten miles through a mountain

Blasting out an eight-story powerhouse two blocks long inside solid rock

Erecting a transmission line fifty miles long over a jagged mountain range

Raising the world's largest aluminum smelter and a new port city at Kitimat where 50,000 people may eventually live and work.

A. O. Strandberg, project manager for Morrison-Knudsen, says:

"These TD-24s are doing the impossible. We never thought any tractor could go where these tractors are working now. They have the weight, they have the balance, and they have the power to get the job done."

And here's what superintendents on the firing line say:

Bill Richards: *"They're pushing boulders uphill we had to dynamite in the old days."*

Herb Wilkinson: *"I wouldn't believe where they'd go until I got them on my crew."*

John Hutton: *"They're doin' work up here they were never built for but they're doin' it just the same."*

Your International Industrial Distributor can give you the facts and figures on the TD-24. See him. You'll be a TD-24 man from then on in!

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POWER THAT PAYS

4 **INSPECTING MOUNTAIN TOP OPERATIONS** at Kemano, headquarters for construction of powerhouse, tunnels and transmission line are (left to right) A. O. Strandberg, Project Manager for Morrison-Knudsen; F. T. Matthias, Alcan Assistant Project Manager, and Walter Abrahamson, Alcan Assistant Resident Engineer at Kemano.

5 **LINKING UP POWER TRANSMISSION LINE ROAD,** a pair of TD-24s doze toward each other through blasted rock. Across 50 miles of rugged terrain like this, a mountain-anchored powerline will be built to flash abundant electricity from mountain powerhouse to smelter at tidewater.

6 **NEW LAND IS MADE IN OCEAN INLET** by dredge which deepens anchorage for ocean shipping at the same time. H. M. Whiting (right), Project Manager for Kitimat Constructors, Ltd., and a superintendent study progress. Part of this 70 acres of new land will become site of new aluminum smelter. Town which may eventually become city of 50,000 will be built across the bay.

South Street Elevated Highway project under direction of Borough President Robert F. Wagner, Jr., with Anthony J. Donargo, Chief Engineer; Pincus Rizack, Engineer of Construction; John T. Carroll, Resident Engineer, for the Borough. Design by engineers of office of Borough President under supervision of Joseph C. Collyer, Engineer of Design, and Jacob M. Friedland, Engineer of Structures. General contractor: Fehlhaber Corporation; A. Burros, General Superintendent.

New Elevated Highway Along New York's East River

The 1.61-mile-long South Street Elevated Highway along the East River waterfront will greatly relieve traffic congestion in the Fulton Fish Market section of New York City. It will separate through traffic from waterfront commercial haulage, and connect the Franklin D. Roosevelt Drive with the Battery Park Underpass.

In constructing the 90-span superstructure of the elevated highway, Bethlehem fabricated and erected 15,582 tons of steel.

With the completion and opening to traffic of the South Street Elevated Highway, the island of Manhattan will be completely encircled by an express dual highway, except for a two-mile stretch along the Harlem river.

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Chamber Urges Federal Aid Continuation

• Long-Range Program "Essential to Well Being of Country"

» CONTINUATION of the long-range highway program developed by state and local governments with federal aid was urged by the U. S. Chamber of Commerce last month as "essential to the well being of our country and its citizenry."

This recommendation was contained in a report, "Highway Construction—Federal-State Relations," published by the Chamber's Construction and Civic Development Department.

The booklet was prepared by the Subcommittee on Public Works Construction which is headed by M. W. Watson, Topeka, Kan., a past president of The Associated General Contractors of America. Other A.G.C. members of the subcommittee include D. W. Winkelmen, Syracuse, N. Y., past president; and Frank H. Haines, of the Standard Engineering Co., Washington, D. C.

It placed primary emphasis on background information of federal-state cooperation in highway construction while recognizing that the nation's system of streets and highways is being developed primarily by state and local governments which provide 88% of the funds.

Without federal aid, however, the report stated, each of the states might well have built an independent highway system, giving little thought to the neighboring states, resulting in a hodgepodge highway network with facilities duplicated and serious inadequacies resulting. The report praised the Bureau of Public Roads for integrating and directing the overall highway system of the country.

It was pointed out in the report that federal aid for highways is solely for construction and right-of-way acquisition and not for maintenance and administrative expenses. Normally the federal aid must be matched dollar for dollar by state funds but there are exceptions for states that have large areas of public lands.

In these states, the federal share is increased by a percentage equal to one half the percentage of public lands the state holds.

The report noted that the bulk of federal-aid highway funds are spent on principal interstate and intrastate roads selected by the states under the 1921 Act. It was also pointed out that Congress has authorized federal funds for secondary or feeder roads, which could eventually be applied to about 650,000 miles of roads.

Streets and highways in the nation's towns and cities, which carry half of the total traffic, have become bottlenecks in the road network, the report added. To off-set this, federal-aid funds for urban construction were provided for in 1944 and have since been steadily increasing. In all, about 600 miles of arterial expressway construction have been completed.

"In summary," the report stated, "the federal-aid program has assisted in the planning, construction and financing of the world's greatest road network. This success has been achieved through a state-federal partnership which has preserved completely the sovereignty of each state, and, at the same time, has provided for federal participation in meeting national constitutional obligations and needs."

Washington Scene of National Highway Meet

• U. S. Chamber of Commerce Sponsors December Conference

» THE NATIONAL Conference on Highway Financing will meet in Washington, D. C., Dec. 10-11 to study facts, figures and ideas necessary to provide an adequate highway program to meet the nation's needs.

Under the sponsorship of the U. S. Chamber of Commerce, the conference will represent the highway profession's best thinking on the urgent problems of street and road construction needs, state and federal responsibilities in highway financing, and the part toll roads can play in providing new traffic arteries.

A major objective of the conference will be to provide members of Congress, state legislatures, the new Commission on Intergovernmental Relations and the Commission on Governmental Operations with helpful data on highway finance problems which they are expected to consider.

Questions to receive special study next month include the following:

- What are our current highway needs?
- Should federal gasoline and oil excise taxes be repealed and left exclusively to the states?
- What should be the size of the federal-aid highway program in the future?
- Should federal funds on interstate and primary highway routes be increased?
- How far will toll roads go in solving the nation's highway needs?
- What should be the sources of major additional highway taxes?

Panel discussions for the first day's meeting include "America's Street and Highway Needs," and "State and Federal Responsibilities." The second day's panel, on Dec. 11, will discuss "Toll Roads of the Future," and will be moderated by M. W. Watson, of Topeka, Kan., a director of the Chamber and past president of The Associated General Contractors.

Consolidation of BPR

A single Division of Engineering, under the direction of Deputy Commissioner A. C. Clark has replaced the Bureau of Public Roads' Division of Construction and Maintenance and the Division of Programs and Design it was announced recently.

Additional divisions under his supervision include primary highways, secondary roads, bridges and urban highways.

Mr. Clark

Mr. Clark had previously headed the Division of Construction and Maintenance and the late Deputy Commissioner Harold E. Hilts had directed the Division of Programs and Design.

A career officer in the bureau, Mr. Clark began in 1919 and for five years was in charge of constructing bridge projects and doing heavy grading in the Pacific Northwest. For the next 13 years he was in charge of federal-aid and forest highway jobs in Montana. He later came to Washington as chief of the Construction Division from 1944 to 1949 when he was appointed deputy commissioner.

A.A.S.H.O.-A.G.C. Groups Air Highway Needs

• Hold Meetings With Southeastern and Western State Officials

» JOINT COOPERATIVE committee members of the American Association of State Highway Officials and the A.G.C. discussed varied highway problems at regional meetings in Asheville, N. C., and Santa Fe, N. Mex., last month.

At the Asheville conference, which was held in conjunction with the annual meeting of the Southeastern Association of State Highway Officials, Oct. 1, the chief topic discussed was the financing of adequate highways.

Federal Gasoline Tax

Hal Hale, executive secretary of the A.A.S.H.O., Washington, D. C., spoke on such topics as the federal gasoline tax, early acquisition of rights-of-way, "less generous" condemnation proceedings, and the possible use of the population formula in determining allocations of federal aid to the various states.

E. J. James, chief engineer of the Louisiana Highway Department, said that his state has earmarked $21 million for secondary roads and only $11 million for primary roads. He called the program "out of balance," adding that the secondary road problem has increased in the past 10 years.

D. A. Bray, state highway engineer in Kentucky outlined what his state is doing to maintain an adequate supply of highway engineers. Although the draft has disrupted their program somewhat, with the aid of scholarships, summer work and training programs, they are making long-range progress. Also, Kentucky has a salary scale and retirement plan which compares to the federal social security plan, he added.

S. L. Taylor, Bureau of Public Roads' division engineer in Hagerstown, Md., told of the bureau's engineer training program which is so popular in his area that 75% of the trainees are retained.

In Virginia, R. P. Ellison, executive assistant of the state highway department, said that the state starts its engineer trainees at $315 a month with salary increases every six months. Also, military leave is granted to employees with at least two weeks of service, in order to maintain a tie with them while they are in service. Additional leave is granted to any returning G. I. trainee who wants to take advanced training in school, he said.

Virginia highway engineers also visit high schools and outline their program and encourage students to take certain courses that would benefit them for highway employment if they don't plan to attend college. From this group, Mr. Ellison added, come many of the sub-professional employees.

Public Relations on Job

Mr. Bray later discussed public relations on highway construction jobs, which included signs such as "This road is being improved for your future comfort and safety," etc., instead of the "public-be-damned" signs like "Travel at your own risk," etc.

Others present discussed the need of coordinating specifications and contract documents for toll roads with regular state highway department procedures. Major benefits will occur where this is done, it was concluded. Also taken up was the problem of transporting contractors' equipment from project to project.

The Asheville meeting was presided over by C. S. Mullen, deputy commissioner of the Virginia department of highways.

Sante Fe Meeting

In Santa Fe, the regional meeting of the joint cooperative committee was held as part of the annual convention of the Western Association of State Highway Officials.

Much of the discussion at this conference dealt with "realistic" specifications for the compaction of subgrades and subbases. It was agreed to study this matter further since there are opportunities for mutual work on this problem to be done by highway engineers and A.G.C. members.

H. D. Mills, state highway engineer of Nevada, was chairman of the joint committee meeting.

B. B. Armstrong, president of the Associated Contractors of New Mex-

(Continued on page 56)

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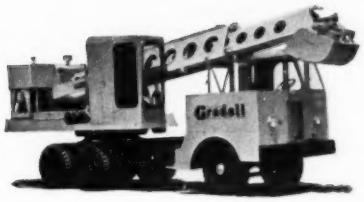

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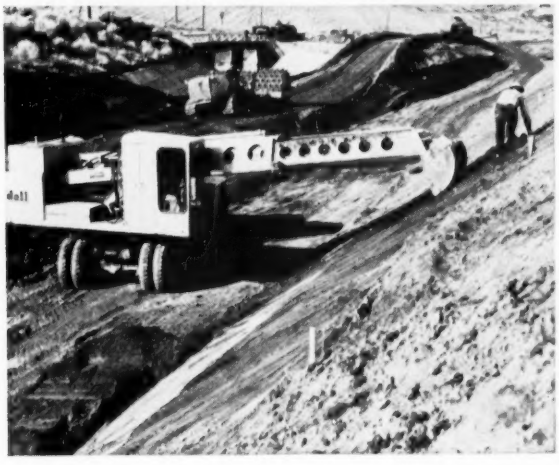
FASTER...

Where other machines falter, the Gradall's speedy arm-action and positive down pressure really go to work! For instance, in ripping asphalt pavement one attachment scores the pavement. Then with a second attachment the Gradall removes large chunks, swinging around to load into trucks—all in one pass. Pavement is removed right down to the sub-surface, eliminating clean-up hand labor. Similarly, it removes grouted brick so smoothly that most of the brick can be reclaimed.



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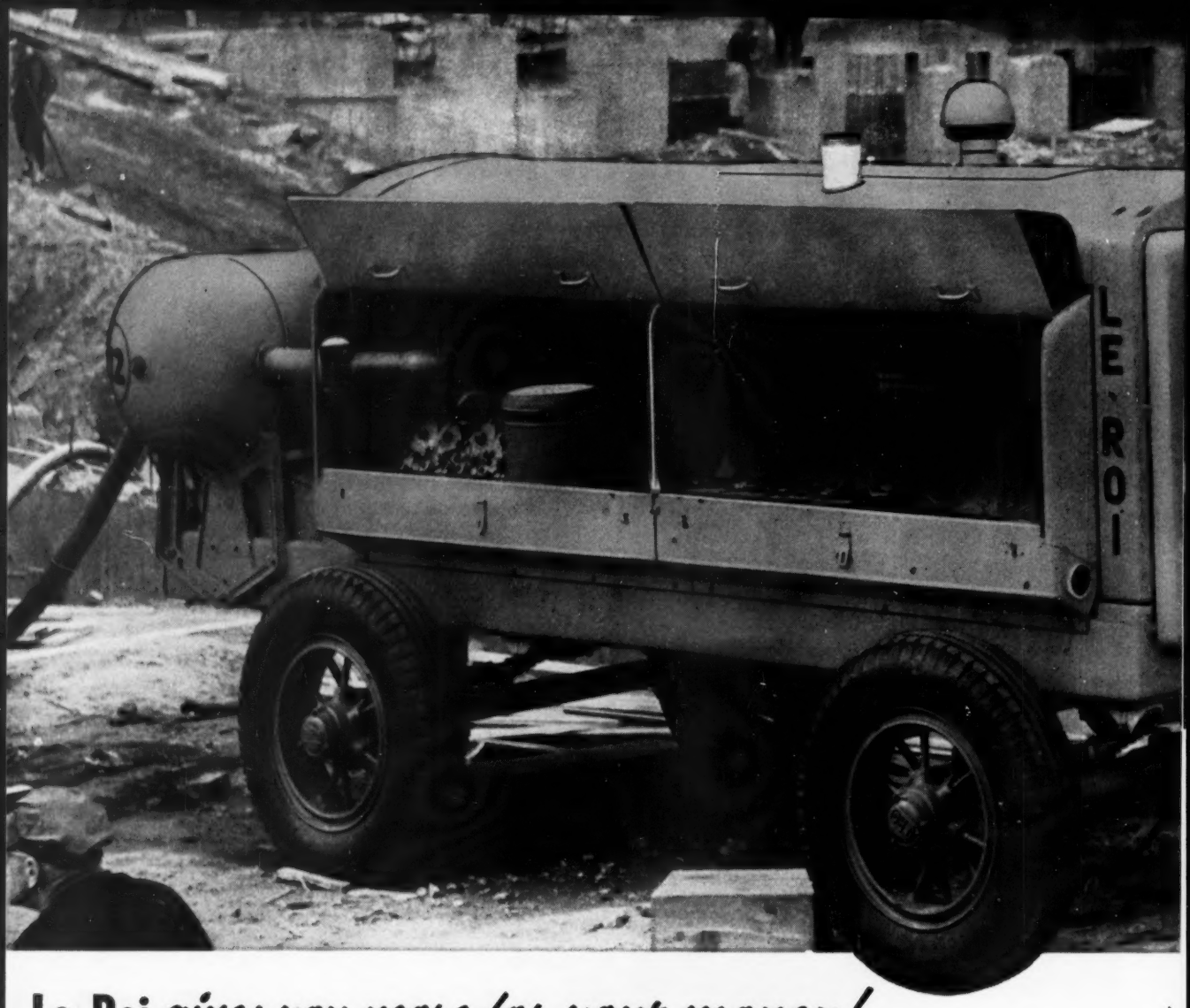


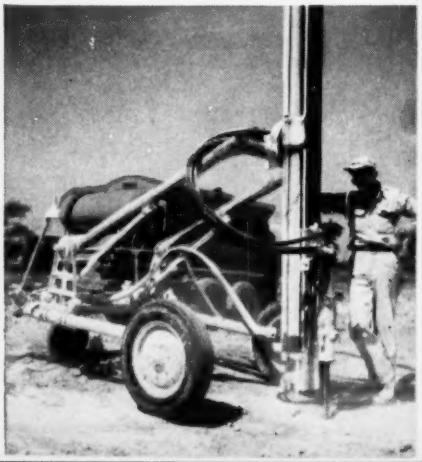
Le Roi *gives you more for your money!*

MORE AIR POWER! MORE FOOTAGE! MORE PROFITS!

Le Roi-CLEVELAND Sinkers are available in sizes from 18 to 80 lbs., with advantages you want. They use less air. They're easy to handle—operators don't tire easily. And they have what it takes to drill more feet per shift: Strong rotation. Powerful blow. High drilling speed.

Tractair is a combination 35-hp tractor and 105-cfm compressor that takes air power anywhere. Here, it operates two Le Roi-CLEVELAND backfill tampers. Can also be used for breaking, drilling — and, when equipped with front-end loader, for digging, loading, lifting, backfilling, snow-plowing, etc. This way, Tractair cuts costs and saves you the extra expense of special equipment.

Le Roi-CLEVELAND DR30 Wagon Drill puts deep holes down faster, with less air, than any other wagon drill available. Uses 4" bore Le Roi-CLEVELAND Drifter. Has strong rotation, powerful hole-cleaning ability, and high drilling speed with big bits. For shallow holes, the lightweight Le Roi-CLEVELAND DR34 is available.



Get air jobs done faster!

with Le Roi Airmaster Compressors and Le Roi-CLEVELAND Air Tools

There are 9 sizes of Airmasters — and 14 models—ranging from 60 cfm to 600 cfm. A 600-cfm diesel unit is shown here. It's got the capacity to operate two deep-hole wagon drills with plenty of air to spare for other tools.

Every Airmaster is powered by a heavy-duty Le Roi engine designed especially for compressor service.

Le Roi-CLEVELAND Paving Breakers are available in sizes from 18 to 80 lbs. They really pack a wallop—make short work of breaking up the hardest concrete. Protective air cushion in front end assures long life. Well balanced for easy handling. Operators like them — and get more done.

YOU make the most of air power—speed your work and keep costs down — when you team up Le Roi Airmaster Compressors and Le Roi-CLEVELAND Air Tools. Here's why:

First of all, a Le Roi Airmaster gives you more air capacity for less money. You can get an Airmaster that's *exactly right* for size — one that's not too big or too little for the job to be done — one that lets you do the most work at the least cost. That's because Le Roi has the industry's widest range of sizes to choose from.

You're ahead other ways, too: Airmaster's full-pressure system delivers *all* the air you call for, *when* you call for it. Conservative rating of the Airmaster engine provides ample power reserve — for lower fuel consumption, less maintenance, lower operating costs. Magneto ignition gives you quick, easy starting — saves time — lets you get going faster.

Now, the best way to use the low-cost air produced by Airmaster is to let it power Le Roi-CLEVELAND Air Tools. They're built to really take punishment — and to break more pavement, dig more clay, drill more rock, tamp more fill.

Enjoy Le Roi air-power advantages. Use Le Roi Airmaster and Le Roi-CLEVELAND Air Tools on your next job — and watch costs drop. See your Le Roi distributor. Write for latest bulletins.

Compressors
Rock Drills
Tractair
Engines . . .

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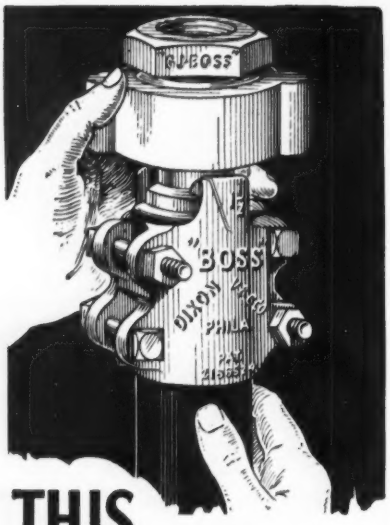

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(Continued from page 52)

ico, A.G.C., addressed the general session of the W.A.S.H.O. meeting and called for economy measures in the big highway construction program this nation faces in order to meet its growing needs.

Most groups which have studied the country's highway needs put the figure at between $50 and $60 billion. Others, looking at it from another angle, say that by 1975 between 65 and 75 million vehicles will be on the roads, he added.

"In any case, the work of overcoming America's highway deficiencies will demand maximum benefit from every highway construction dollar invested," he continued.

In order to assure this economy in highway construction, Mr. Armstrong called for:

Long-range planning and the advance purchase of rights-of-way in order to get the land at the lowest possible cost.

Better paid engineers who will be of a high caliber and better able to save large sums of money with their greater engineering skills.

Construction by contract, which assures the most construction at the lowest possible cost.

Other suggestions that Mr. Armstrong made to the awarding agencies seeking greater economy were the following logicial steps:

- Write specifications precisely and accurately without saying how results are to be secured.
- Prepare designs whenever possible that permit duplicate use of forms.
- Prepare specifications to permit economical use of equipment and the use of large units whenever possible.
- Provide experienced inspectors who can interpret specifications accurately without restricting the contractor too much.
- Prepare designs that make use of a maximum of local materials.
- Award contracts in various sizes to provide work for the large and small contractor alike.
- Make the construction season as long as possible by awarding projects as early as possible.
- Pay the contractor promptly for completed work.

The national joint cooperative committee of the American Association of State Highway Officials and A.G.C. was scheduled to meet November 11 in Pittsburgh during the A.A.S.H.O. annual meeting.

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Facts

About Your Budget

Ever see a budget you didn't have to s-t-r-e-t-c-h to cover even the "must-have" items on the list? Here's help! You really stretch your budget dollars, make them do more and go farther when you specify "Cleveland" for your trenching equipment. You do more trenching work—better, faster and cheaper—use less equipment—require smaller yearly investment—fewer manhours—smaller payroll—less repair and maintenance—with Clevelands. And their rugged, quality-construction and their proved extra long work-life mean that you *won't* be budgeting for replacement of worn-out equipment for years to come!

About Cleveland "Model 80"

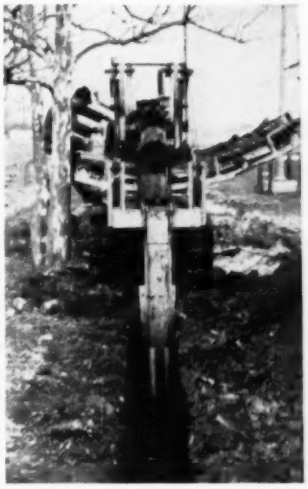
Backfiller—Tamper—Side Crane

- *One* machine, *one* man operated does *three* big trench completion jobs: ① lays pipe, ② fills trench, ③ tamps fill—*plus* all types of light side crane work, pulls crossings, loads and unloads pipe, valves, etc.
- Lays pipe safely, smoothly with minimum man power. Over 3,000 lb. capacity at 6 ft.
- Live, telescopic boom, long reach. Sure clutches, smooth brakes.
- Backfills fast and clean from either side of trench—*toward* or *away from* machine. Fits wide range of trench sizes. Easy on lawns, sidewalks, etc. Does a beautiful clean-up job.
- Tamps thoroughly—delivers over 470 ft. lb. blow 42 times per minute—produces maximum practical compaction. Backfills, tamps, travels simultaneously. Travels *parallel* to trench, minimizing traffic interference.

LAYS PIPE . . . . FILLS TRENCH . . . . TAMPS FILL

About Cleveland "Baby Diggers"

- No specialists—but versatile, performance-proved experts on all types of trenching jobs.
- Most efficient digging element, the wheel, digs all soils, in all weathers.
- Compact, highly maneuverable, easy to work in tightest places, right up to building walls, between obstructions, etc.
- Extremely portable—cover scattered jobs easily—travel at truck trailer speed.
- Better public relations—easy on walks and driveways, no tires to spin and gouge lawns.
- Choice of models—depths from 3½′ to 5½′, widths from 9″ to 24″, digging speeds from 6″ to 29′ per minute, providing *right* speed and power combination for *every* job condition.



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Safety Congress Held in Chicago Last Month

- A.G.C. Representatives Attend Construction Section Meetings

» NEED FOR SAFETY in the nation's cities, on its farms and over its highways was brought into sharp focus by the 41st National Safety Congress held in Chicago Oct. 19-23.

More than 12,000 representatives from government, industry, labor, and education moved into the Windy City to take part in the largest congress and exposition yet put on by the National Safety Council. More than 650 speakers, leaders in their respective fields, addressed some 100 different sessions which considered safety from every conceivable angle at home, in school, on the job, and over the highway.

Construction Deaths High

The construction industry, which had more than its share of accidents last year resulting in 2,400 deaths, paused during the congress to take stock of itself safety-wise and found that much more can be done to save lives of its skilled labor and cut the soaring costs of workmen's compensation.

H. B. Alexander, of the H. B. Alexander and Son Construction Co., A.G.C., Harrisburg, Pa., general chairman of the Construction Section, scheduled three days of intensive study to promote accident prevention in the industry.

The three "E's" of safety—engineering, education and enforcement—highlighted the opening symposium of the sessions in the Hamilton Hotel. Dale Medsker, National Surety Corporation, Atlanta, led off the discussion showing how engineering principles can be applied to make heavy construction safer.

Fred L. James, safety engineer of the Tellepsen Construction Co., Houston, and assistant professor of industrial engineering at the University of Houston, called for practical safety education within the industry.

Enforcing Safety

As an indication of the importance of enforcing safety practices, three speakers rounded out the symposium with talks covering the three general types of construction. E. N. Ziner, of the John A. Volpe Construction Co., A.G.C., Malden, Mass., covered enforcement of safe practices in building construction.

Ray H. Hahn, Allegheny Asphalt & Paving Co., Inc., A.G.C., Pittsburgh, called for more enforcement of safety in highway construction; and J. G. McFarland, safety engineer, U. S. Steel Corporation, outlined the safety program his company carried out in the construction of the huge Fairless Works in Morrisville, Pa.

Panel on Placement Exams

In an afternoon meeting of the section the following day, H. W. Richardson, editor of *Construction Methods and Equipment*, of New York City, led a panel discussion of job-placement physical examinations.

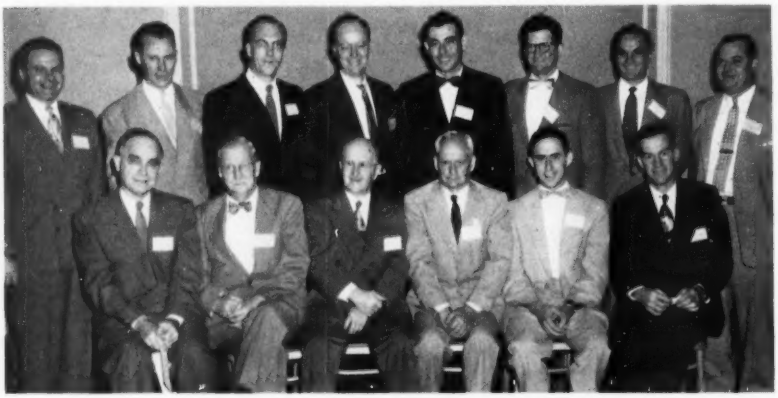
The panel consisted of George P. O'Rourke, Sr., O'Rourke Construction Co., A.G.C., Dallas, who represented the general contractor; B. S. Quigley, attorney for the Liberty Mutual Insurance Co., Chicago, speaking for insurance firms; Andrew Westley, Brotherhood of Painters, Decorators and Paperhangers of America, who spoke for organized labor; John Moulin, industrial commissioner of Illinois, who gave the state commission's views; Dr. Maxwell M. Corbett, who explained medical problems arising from such examinations; and R. H. Shinkle, job superintendent of the American Bridge Division of U. S. Steel Corp., who gave the superviser's views on the question.

At the morning session preceding the panel the executive committee announced the election of officers for 1954. The meeting also heard Stanley F. Staples, Employers' Mutual Liability Insurance Co., Wausau, Wisc., cite ways insurance companies can help contractors make a profit, through the proper use of insurance.

New Officers Elected

New Construction Section officers include Mr. Alexander, re-elected general chairman; Mr. O'Rourke, vice chairman; and George M. Robinson, A.G.C. of Missouri, secretary.

New committee chairmen include the following: Mr. Medsker, engineering; R. L. Jenkins, chief of safety division, Corps of Engineers, data and publications subcommittee; William G. Hawkins, Winston Brothers Co., A.G.C., Minneapolis, visual aids subcommittee; Ralph Ward, Employers' Mutual Liability Co., Chicago, screening subcommittee; Clement Luepke, T. H. Martin and Co., St. Louis, health; Robert L. Moore, Lumbermen's Mutual Casualty Co., Chicago, membership; Mr. Ziner, editor of the news letter; O. Lupinski, Lupinski, Inc.,



A.G.C. members attending the 41st National Safety Congress in Chicago last month are shown as follows: Seated—H. J. Kirk, safety director of the national association; S. D. Webb, Dravo Corporation, Pittsburgh; H. B. Alexander, H. B. Alexander and Son, Harrisburg, re-elected general chairman of the Construction Section; G. L. Lupinski, Lupinski Co., Milwaukee; E. N. Ziner, John A. Volpe Co., Malden, Mass.; and R. A. Wells, Fisher Construction Co., Phoenix, Ariz. Standing—H. W. Westlund, S. J. Groves Co., Minneapolis; L. M. Lively, representing the A.G.C. chapters in California; William Hawkins, Winston Brothers Co., Minneapolis; G. O. Griffin, Dravo Corporation; A. J. Bay, Brown and Root Inc., Houston; Fred Barr, T. L. James and Co., Inc., Ruston, La.; K. A. Hyde, C. F. Brown and Co., Alhambra, Calif.; and G. M. Robinson, A.G.C. of Missouri.

Milwaukee, program; Fred A. Hornsby, Mine Safety Appliance, Inc., Pittsburgh, publicity; S. D. Webb, Dravo Corporation, A.G.C., Pittsburgh, statistics and contests; and Harry J. Kirk, safety director of the A.G.C., Washington, D. C., national organizations.

On October 22nd, the final day of the Construction Section's meetings, the executive committee met and heard the committee chairman report their plans for promoting accident prevention in construction work during the coming year.

Hard Hats on the Job

Safe Practices Underground

Safety first with hard hats is the watchword on all underground projects of the Walsh Construction Co., A.G.C., of Davenport, Iowa and San Francisco.

Above, workmen entering a tunnel project in California glance at a sign overhead requiring all going underground to wear the head gear.

The firm has the contract on the tunnel which will be four miles long and 19 feet in diameter, and used to divert mountain streams to the Pacific Gas and Electric Co.'s Pit 4 Powerhouse.

Excavation for the powerhouse is being done by the Morrison-Knudsen Co., A.G.C., of Boise, Idaho. The $25 million plant when completed will add 84,000 kw of generating capacity to the utility company's system.

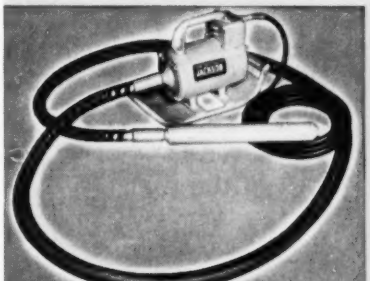
6 WAYS TO STEP UP RESULTS *and* PROFITS!

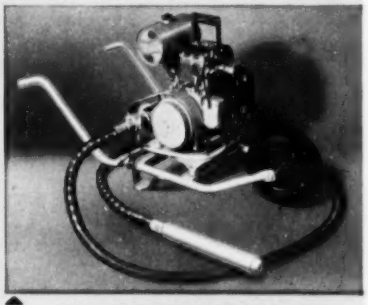
MACADAM CONSTRUCTION

In one pass the Jackson Multiple Compactor will compact 12" of rock to support smooth rollers. In 4 passes compaction to final density may be obtained. With 2 passes all voids from top to bottom can be filled with fines. In gravel sub-bases 7" thick, one pass suffices to produce densities exceeding 100% Standard Proctor. Working speeds from 0 to 60 ft. per minute. 5½ MPH travel speed.

SOIL COMPACTION. The powerful, new, self-propelling Jackson Compactor, with 12" to 26" interchangeable bases, achieves specified density of granular soils in 8" to 10" depths at 2400 sq. ft. per hour. Perfect for bridge and pipeline fills, concrete floor sub-bases, etc.

BLACKTOP WIDENING & PATCHING. The same machine, operated from power plant on auto-trailer with pickup for Compactor, is most efficient means of blacktop pavement widening and patching, paving walks, drives, etc. Compacts 2400 sq. ft. per hour, close to maximum density.





GENERAL CONSTRUCTION. (left); 6 H.P. engine driven, flexible shaft vibrator. Excellent for both thin and thick sections. (Right); 2½ H.P. electric vibrator for light socket operation. Handy as a pocket in a shirt, powerful enough to handle all general construction concrete vibration with shafts up to 28'.

DUAL CURRENT PORTABLE POWER for operating all Jackson machines and lights. 1.5 to 7.5 KVA, providing both single and 3-phase 60 Cy., 120 V, AC (120/240 V in larger models). Permanent magnet generators require no adjustment or maintenance.

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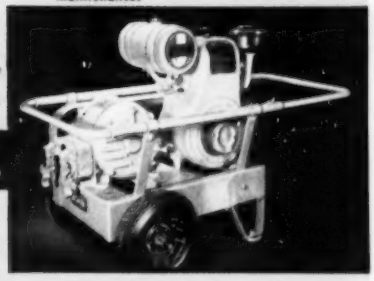

Knockout blows to the costly, tragic industrial accident menace are dealt daily by every Employers Mutuals Team, cooperating with our policyholder-owners. Lives are saved, production is improved, morale is boosted and, often, insurance costs are cut when the Employers Mutuals Team goes into action! Let us explain how *you* can benefit.

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EMPLOYERS MUTUAL LIABILITY INSURANCE COMPANY OF WISCONSIN
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Dallas Holds Safety School

The Dallas construction industry held its second annual safety school in September to acquaint general contractors, subcontractors and their superintendents and foremen with the latest practices in preventing accidents on the job.

Sponsored by the Dallas County Construction Employers' Association, Inc., the city's A.F.L. building and construction trades council and the Dallas Chapter of the A.G.C., the school was held in 2-hour sessions on the evenings of September 15th, 22nd, and 29th.

In the first session, representatives of management, employees, and supervisors outlined their responsibilities in reducing construction accidents. The second session included speeches by safety engineers and insurance officials on accident prevention practices, maintenance and inspection of equipment, and the use of safety standards. A movie on good housekeeping was also shown.

Classes Well Attended

The final session featured a panel discussion of the current problems of management and labor in carrying out safety programs.

A total of 183 registered for the school which had an average attendance of 117 at each class. Certificates were presented to 68 persons who attended all three classes.

At the close of the final session, E. G. Peterson, Peterson Construction Co., A.G.C., who was general chairman of the project, announced the organization of a permanent committee of contractors, labor officials and insurance representatives which will coordinate future safety programs in the Dallas area.

Pennsylvania Industrial Safety Conference met Sept. 16-17 in Harrisburg to consider ways of reducing the state's high rate of industrial accidents which injure thousands of workers and cost millions of dollars annually.

H. B. Alexander, A.G.C. Accident Prevention Committee chairman, conducted the construction section which heard reports from representatives of government, labor and management.

The conference passed a resolution asking for a tighter safety inspection system by the state on its public works construction jobs.

Firm Has Third Safety Award in 8 Years

For the third time in eight years the George K. Werner and Son Co., of Clay Center, Neb., has won a national A.G.C. plaque for safety. Above, Philip Werner (left) receives the award from Nebraska Chapter President Clarence Isaacson for having the Best Five-Year Record in the Highway Division from 1947-1952.

The firm won the same prize for 1945-1950 in addition to the First Place Best Record for 1947 in a Highway Division group.

Mr. Werner's success: vigilance by himself and his key men, safety discussions with his employees, and movies that he makes on the job showing dangerous practices.

Contractor Wins No Lost-Time Certificate

D. M. Fontana, Wilmington (Del.) building contractor, at right, receives an A.G.C. award for no lost-time accidents last year from P. C. Van Sant, president of the A.G.C. of Delaware, at recent ceremonies in that city.

Mr. Fontana was named to receive the award at the A.G.C.'s annual convention in Miami last spring, but was unable to receive it at that time.

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QUANTITY
SURVEYS
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CLASSES OF CONSTRUCTION
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Approved by A.G.C. and Federal, State and Municipal Authorities
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DEPENDABLE SURVEYS SINCE 1922

Reduce costs and
INCREASE PROFITS
by renting these metal forms for concrete

Economy Metal Forms save time, labor and material. They quickly lock together with a simple twist of a clamp. Standard units fit most jobs. Where needed, special forms can be fabricated to specification.
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ECONOMY FORMS
metal forms for concrete construction

"this NEW Cedarapids SUPER is the star performer

HERE'S the Cedarapids Super Tandem Gravel Plant *newly engineered* for star performance on jobs where gradation of a big volume of material is the most important of the plant operations. The Super Tandem is now built with a 48″ x 12′ Horizontal Vibrating Screen to give you the really high screening capacity that is a big advantage in any pit and is especially profitable where there's a high percentage of fines or contaminated material. Other Super Tandem features, like the 1036 jaw crusher, 2416 roll crusher and 30″ wide conveyors, are engineered to handle this extra capacity with no increase in operating or maintenance costs. See your Cedarapids distributor for complete details.

THE IOWA LINE *of Material Handling Equipment Includes:* ROCK AND GRAVEL CRUSHERS • BELT CONVEYORS • STEEL BINS • VIBRATOR AND REVOLVING SCREENS • UNITIZED ROCK AND GRAVEL PLANTS • FEEDERS • PORTABLE POWER CONVEYORS • PORTABLE AND STATIONARY STONE, GRAVEL AND SAND PLANTS • REDUCTION CRUSHERS • BATCH TYPE AND VOLUMETRIC TYPE ASPHALT PLANTS • DRIERS • DUST COLLECTORS HAMMERMILLS • WASHING PLANTS • VIBRATING SOIL COMPACTION UNITS • DOUBLE IMPELLER IMPACT BREAKERS

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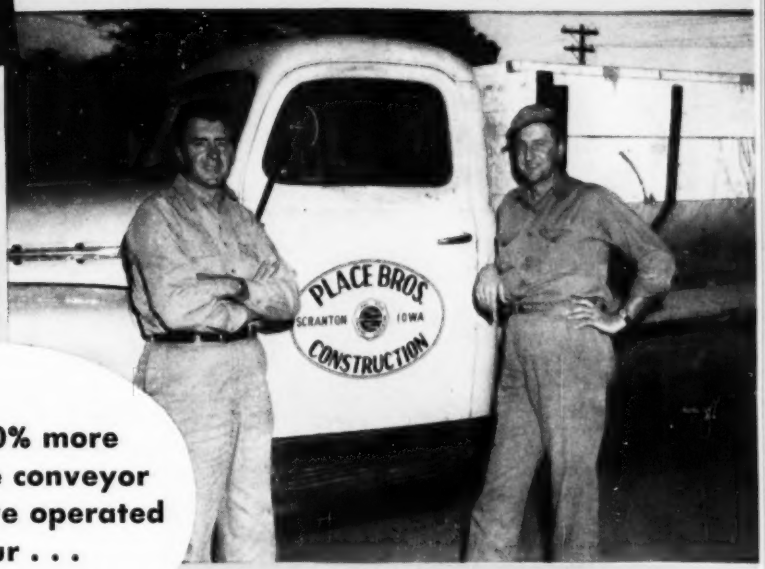
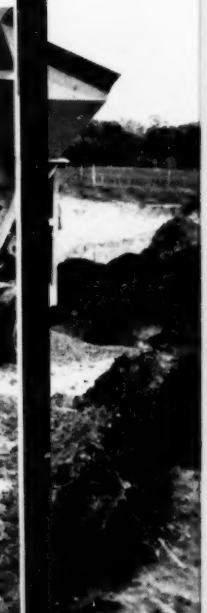
for our jobs"

Say the Place Brothers of Scranton, Iowa



"we're getting 100% more screening . . . 25% more conveyor than the Junior Tandem we operated . . . 228 to 310 tons per hour . . . steady operation day in and day out . . . very low maintenance . . . THAT'S PROFITABLE PERFORMANCE!"

Burl Place (left) and LeRoy Place are producing ¾" minus crushed gravel to the tune of a 228-ton per hour average . . . with peak production hitting 3560 tons in an 11½-hour day! Average per cent of crush was 20% with portions of the material wet, with some clay. Burl Place says, "This new Super Tandem is very trouble-free and dependable. We can plan on operating at full 11½-hour day every day, weather permitting, and maintaining the high average production that keeps us ahead of our competition."



"OUTSCREENS ANY OTHER SCREEN I'VE EVER SEEN," says LeRoy Place

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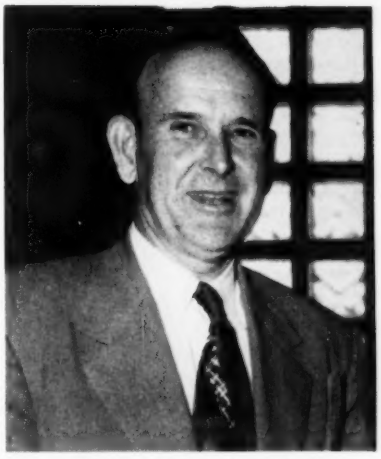
Training the Young Engineer in Cost Estimating

By R. L. Peurifoy

Professor of Construction Engineering, A. and M. College of Texas



Professor R. L. Peurifoy

R. L. Peurifoy, a college professor with a background of experience in the contracting business, gives some valuable advice to his colleagues in engineering education in this speech which was first delivered several months ago at an annual meeting of the American Society of Engineering Education. Another of Professor Peurifoy's addresses appeared in the July issue of THE CONSTRUCTOR. Its title, "The Contractor and You."

» SEVERAL years ago two freshmen students, entering a college, were in a line to register for courses in engineering. Each was given a card and instructed to write thereon the field of engineering of his choice. The second student tapped the first student and asked him how to spell mechanical. The first student replied that he could not spell mechanical as he was registering for civil engineering. After a moment of thinking the second student said "I believe I will take civil engineering too." I do not think that our civil engineering students select this field because they can not spell mechanical engineering. Most of them have given serious thought to the several fields prior to reaching a decision. Once they have reached a decision it is our duty to assist them in receiving that training which will best prepare them for service in their chosen field.

The Educators' Responsibility

The responsibility of determining what training the future engineers of our nation shall receive during their college careers rests with us. We can not shift this responsibility to any other group of educators or individuals. Those of us who have critically studied a curriculum in civil engineering for the purpose of selecting the courses which are most desirable know that it is a difficult task. We find that before we have included all of the courses the allotted time is consumed. Thus we can not simply select a course which seems desirable and include it in the curriculum. If we add a course we must remove another one. Thus our problem is one of attempting to determine which of several courses is the most desirable for the future civil engineer. The answer may not be the same for all institutions, as it involves the very fundamentals of higher education, concerning which our opinions differ a great deal. How, then shall we reach a decision?

The Need for Change

A critical analyst will make a comprehensive study of the services which his product should render. Based on the findings of such a study he will undertake to build that product which most nearly satisfies the needs. Can we do this successfully with the curriculum in civil engineering? For approximately 100 years we have been training students for the profession of civil engineering. Why then have we not determined the most desirable curriculum, and having made the determination, why not simply continue to follow it without any further changes? The answer to this question is that our curriculum would soon be out of step with the needs of the profession.

The civil engineering curriculum, in most instances, provides training in such fields as surveying, hydraulics, highways, structures, sanitary engineering, and soil mechanics. Obviously it is difficult for an undergraduate student to specialize in one field without foregoing desirable courses in other fields. How can we justify the addition of a course in cost estimating to a curriculum already heavy?

Training Men for Construction

We have included a three semester hour course in cost estimating in the curriculum in civil engineering at the A & M College of Texas because we believe that there are at least two basic justifications for such a course. The first justification is that students in civil engineering, who intend to enter the profession, should have a clear conception of construction costs as they are influenced by the design of an engineering project. The second justification is that a great many of our graduates are entering the construction industry. Out of a total of 49 students who were graduated in June, 1952, 31 expressed a desire for employment in construction. This condition has prevailed for a number of years.

First, let us consider the students who plan to enter the profession as civil engineers. Do they need training in the fundamentals of cost estimating? Is this need sufficient to justify requiring them to take a course in cost estimating? Is it desirable for them to develop an understanding of construction costs along with their training in the design of highways, structures, water systems, sewage disposal systems and foundation structures? We believe that it is desirable. A well known dean of engineering 25 years ago said that anybody can design and construct a dam, but it requires an engineer to correctly and economically design a water distribution system. If such a system is to be designed correctly it must be designed economically. This involves cost estimating. I do not mean cost estimating which simply permits an engineer to determine the probable cost of any given project, but cost estimating which permits an engineer to understand the differences in the costs of several designs which should be considered.

Designer Must Know Costs

A short time ago I came into possession of a set of plans and specifications for a rectangular, two compartment reinforced concrete water treatment reservoir, whose outside dimensions were 100 feet by 80 feet, with walls 12 feet high and 12 feet thick.

The specifications required monolithic construction, with lifts not less than 18 or more than 24 inches, and the time between pours not to exceed 45 minutes. This is a good engineering construction if we neglect costs. In order to satisfy the specifications it was necessary to mix and place about 40 cubic yards of concrete per hour. This required two 28S concrete mixers and additional equipment plus laborers sufficient to construct a medium size dam. The cost of the project was unnecessarily high. The project could have been constructed differently, using methods which have proved to be satisfactory, and at a substantial saving to the owner. Apparently the designer did not clearly understand the factors which affect the cost of a project. I hope that a better knowledge of the factors which affect the costs of construction will reduce the frequency and magnitude of such mistakes.

Keeping Form Costs in Mind

It is common practice among engineers who design concrete structures to reduce the sizes of columns and beams in most cases where strength conditions permit such reductions. Their reasoning is that a reduction in the quantity of concrete will result in a reduction in the cost of the structure. This reasoning is not necessarily correct. When the sizes of structural members are altered it is usually necessary for the contractor to completely rebuild all parts of forms, at considerably higher costs than would result from simply removing and reassembling the forms for additional uses. The added cost of rebuilding the forms will frequently exceed the saving in the cost of concrete resulting from the use of smaller columns or beams. The cost of forms is a major item in the cost of concrete structures. I wonder if this information is stressed sufficiently for our civil engineering students.

How can an engineer properly design the supporting foundation for a structure without a knowledge of the cost of each type of foundation under consideration? Without such knowledge a foundation may be selected which is considerably more expensive than necessary.

The correctly designed project, from an engineering viewpoint, is one which will furnish the desired service, with adequate strength, appearance and other properties, at the lowest practical cost. I believe that in many instances an engineer could revise the specifications for a project, or perhaps he could modify the design of a structure in such a manner that the cost of the project could be reduced without sacrificing the quality, appearance or usefulness of the project. To do this is an obligation which every engineer owes his client. A knowledge of cost estimating is essential if this goal is to be achieved. Our course in cost estimating involves studies of examples such as those given, which are intended to emphasize the relationship between design and cost.

Responsibility to Industry

Next, let us consider the student who is trained in cost estimating for the purpose of entering the construction industry. Many people will argue that it is not the function of colleges to train men to serve the construction industry. It is their reasoning that if industry wants men trained to perform specific duties industry should provide the training. I believe that this is sound reasoning within limits. But perhaps we can envision a service which extends beyond merely training men to perform specific duties, which after all is vocational training and is frowned on by most colleges. Today construction is a forty billion dollar per year industry, which is the largest in the United States, if the dollar is used as a standard measurement. Our educational institutions have offered very little training service for this industry. On the other hand we have comprehensive training service for such industries as petroleum, just to mention one out of many. The money and efforts which have been spent in training highly qualified men for service in the petroleum industry have been repaid to the American public many times over through improvements in the production of petroleum and its products.

If, as the result of training men for better service in the construction industry, it were possible to reduce the cost of construction by one per cent the annual saving would amount to $400,000,000. Under the competitive practices which are followed in the industry most of this saving would revert to the public. How can training in cost estimating result in such a saving? Perhaps there are several ways to realize this saving.

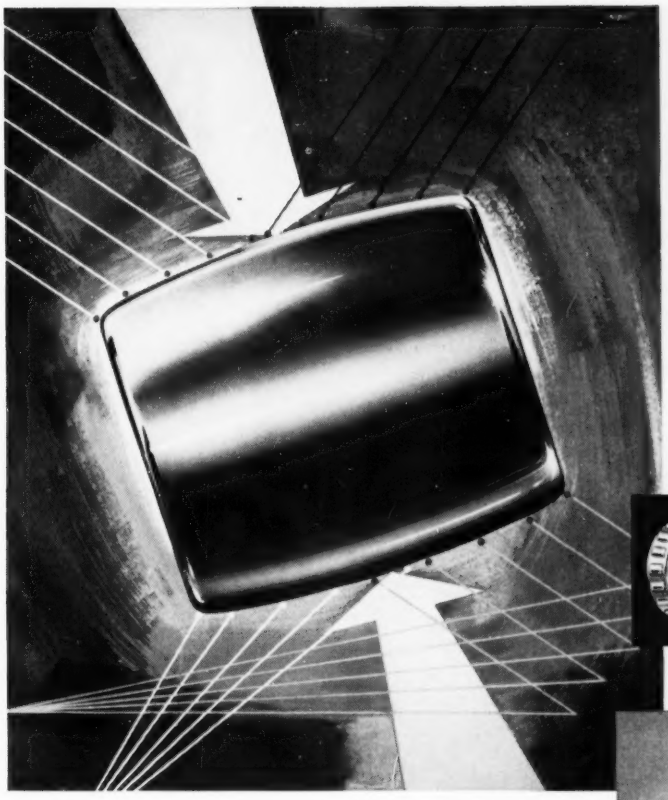
Cost estimating is not an exact science. This is frequently demonstrated by the large variations in costs between the engineer and the contractor or between contractors for a given project. Such variations are not wholesome for the industry or for the public which pays for the costs of construction. If an estimator will follow well organized estimating procedures, and if he will intelligently analyze the methods of constructing each project he should reduce the uncertainties materially. The elimination of these factors should enable contractors to safely submit lower bids. I believe that proper training can produce men who are capable of more intelligently analyzing construction methods and organizing cost estimating procedures. This ability of trained engineers to perform in a superior manner has been demonstrated many times in other fields of engineering. Evidently contractors who have employed our graduates also think likewise for a number of them have told me that they are finding our graduates to be much better trained than other employees in this respect.

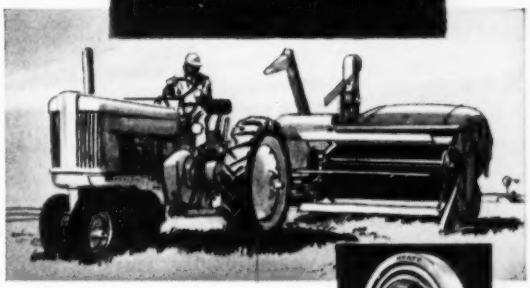
Knowledge of Methods

Another factor which favors men who are trained in the science of estimating is their developed ability to use their imagination in seeking better and more economical methods of constructing projects. The selection of improved construction methods or more suitable equipment for the construction of a project will frequently reduce the cost of the project a great deal. In the past there was not much choice of equipment because so little was available. However, today, with the development and production of many types of equipment, the analysis of available equipment for the purpose of selecting the most suitable methods of construction is a challenge to an experienced graduate engineer. A contractor who estimates the cost of a project incorrectly and who does not properly plan the construction methods in advance will be sunk before he even starts construction. He can not overcome this handicap by driving his men and equipment more vigorously, as he may have done in the past.

I was associated with a project where the contractor, through intelligent analysis of construction methods, found that he could well afford to pave four miles of haul road in order to improve the performance of earth

(Continued on Page 69)





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(Continued from Page 66)

hauling equipment. The analysis required a knowledge of physics, mathematics and engineering, including mechanical engineering.

Beginning a Successful Career

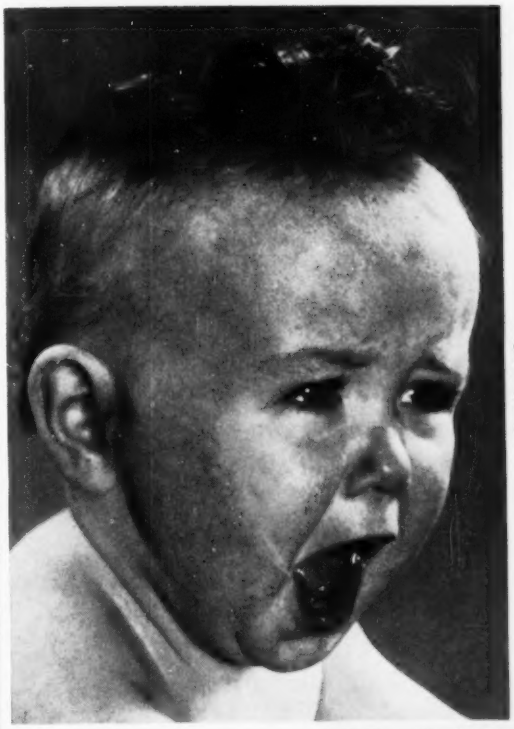
I know of a young man, who, as an estimator, prepared an estimate which was submitted as a bid for a project. The bid was so low that the senior members of the firm knew that a serious mistake had been made. They considered discharging the estimator immediately, but decided instead to place him in charge of the construction in order that he might prove or disprove the validity of his estimate. He used methods on which he had based his estimate and succeeded in completing the project at a profit. It is needless to say that he is doing quite well in the construction industry today.

How can a course in cost estimating develop those characteristics which are needed by a cost estimator? Training in the mechanics of estimating alone will not do the job. The course should be designed to encourage a student to develop inquisitiveness, it should inspire creative thinking, yes, even a degree of dissatisfaction with what is presently being done is desirable. Inspire him to believe that there is a job for him to do. Examples and problems should be used frequently.

Class for Bidding Practice

Several times each semester we divide our classes into groups of three or four students each for bidding purposes. We give them a simple project for which each group must obtain prices, production rates, equipment costs, etc. From this information each group prepares its estimate. At a designated time all bids are submitted and opened before the class. The low bidder must justify his bid before the entire class. This practice creates considerable interest and encourages the students to analyze projects for cost purposes.

We assign problems which require the students to determine the costs of construction using various methods or different types of equipment. We select a project to be constructed under different job conditions, and require the students to determine the probable cost for each condition. This, we believe, is good training as it encourages thinking. All this helps prepare them to render a definite service to the industry and to the public.



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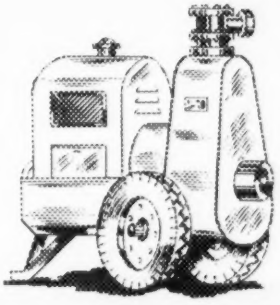

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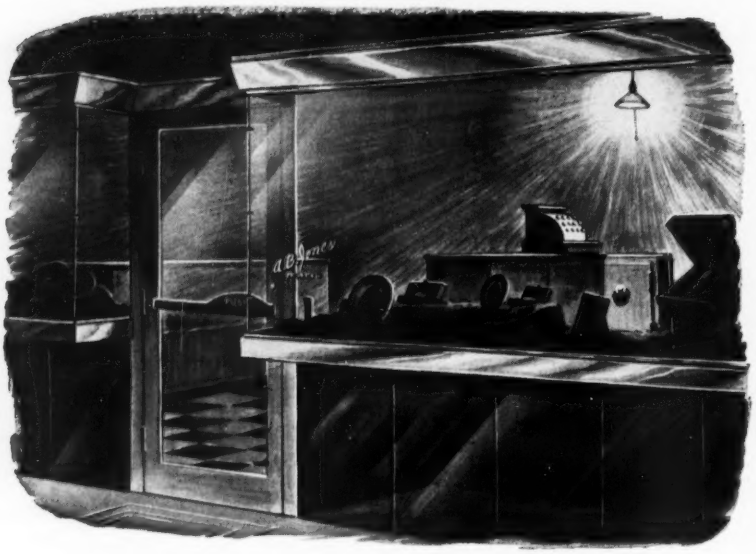
The light that fails—



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Management Seminar Offered

Thirteen lectures are scheduled in a seminar for supervisory and administrative personnel of the construction industry which got underway with the fall semester at Washington University in St. Louis under the sponsorship of the University and the A.G.C. of St. Louis.

Classes for the course which is entitled "Management of Construction Activities," are being conducted by members of the university staff and qualified individuals from the construction industry. According to Harry S. Till, Jr., manager of the A.G.C. chapter, each class is of two hours' duration and is given one night a week. Lecture topics are:

The Construction Industry, the General Contractor and the Subcontractor

Estimating and Progress Schedules

Job Planning and Organization

Records and Cost Distribution

Blue Print and Specification Reading

Human Relations

Job Safety

Coordinating Work of Subcontractors

Labor Management

Concrete Technique

Construction Equipment

Mechanical Trades Panel

General Contractor, Architect, Engineer-Superintendent Panel

The course has no prerequisites and no credit is given. However, students will be awarded a certificate of completion. Tuition is $25.00 and is payable to the university.

Classes are being conducted in Louderman Hall Auditorium of the university. Information required of the enrollee is his employer, job title, education (last grade completed if the student has no high school or college) and whether or not apprentice training has been completed.

Recently, the chapter's board of directors voted to offer annual awards of $50.00 each to an outstanding architectural engineering student and an outstanding civil engineering student at the university. For many years the building division of the chapter has awarded a prize of $25.00 to a worthy Washington University architectural engineering student.

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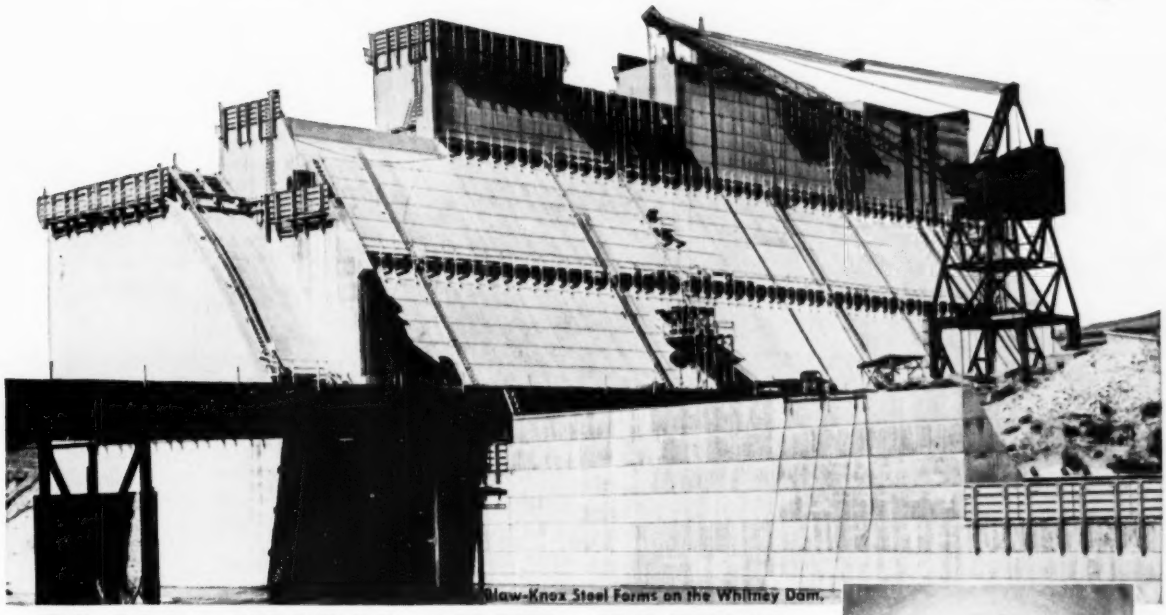

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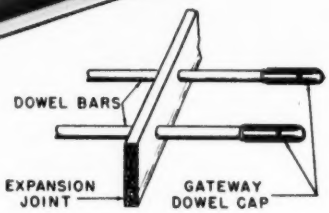

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11 Northwest Chapters Visited By Street, MacLeod, Marshall

- Officers Swing Through Col., Wash., Utah, Oregon
- Get First-Hand Information on Local Conditions

» PRESIDENT C. P. Street, vice president John MacLeod and executive director James D. Marshall of The Associated General Contractors of America have completed a swing through four northwestern states during which they met with representatives of 11 chapters and branches.

Their trip, with the first meeting being held on Columbus Day, took them to Denver, Salt Lake City, Portland, Spokane and Seattle. Chapters and branches with whom they met were: Colorado Building Chapter, Colorado Contractors Association, Intermountain Branch, Portland Chapter, (both the highway and heavy division and the building division), Spokane Chapter, Eastern Washington Builders Chapter, Seattle Chapter, Mountain Pacific Chapter, Tacoma Chapter and the Wyoming Contractors Association.

Local conditions and mutual problems of the chapters were discussed against the outlook for the construction industry as revealed in a recent survey by the national association, with particular attention being focused on the competitive situation and legislative matters.

Construction Increasing

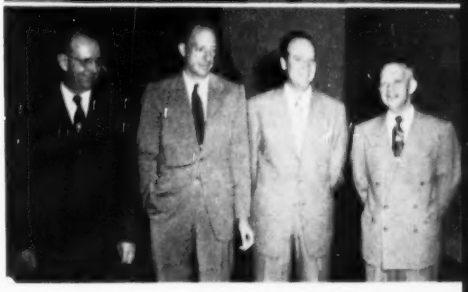
Mr. Street declared that although the $45 billion which it is estimated will be spent on construction this year is $2 billion more than during 1952, "it actually represents a far greater increase in the amount of construction due to the fact that competition is keener and contractors' prices necessarily lower.

"The contractor's wage rates are up and prices he must pay for materials generally are stable. But still he must shave his bids lower and lower to survive in the present competition which is keener than at any time since 1940."

All three A.G.C. officials said they approved of President Eisenhower's recent appointment of James P. Mitchell as Secretary of Labor. "He knows our industry and he has had years of experience that well qualify him for the appointment," declared Mr. Street.

The officers said they looked for commercial, industrial and institutional building to go on "full blast" in view of the lag in the '30s and '40s.

All three officers spoke briefly at the chapter meetings and then entered into discussions on various subjects which were introduced from the floor. The meetings were well attended and the discussions lively. One chapter manager reported that only a request from the building management that they leave to allow him to set up the room for another meeting, broke up the A.G.C. gathering.



Above, at a meeting with the Intermountain Branch, Salt Lake City, where 80 contractors turned out to discuss mutual problems with the national officers. Left to right, J. P. Gibbons, national director from Utah; J. D. Marshall, Washington, D. C., A.G.C. executive director; C. P. Street, Charlotte, N. C., A.G.C. president; Harold J. Whiting, president of the branch; E. H. Dorland (partially hidden), branch vice president; John MacLeod, Paramount, Calif., A.G.C. vice president, and Carl E. Nelson, Logan, Utah, A.G.C. Advisory Board.

Right, the meeting at Denver was the occasion for a get-together of both Colorado chapters and the Wyoming Contractors Association. In the top view, left to right, are N. A. Nelson, president; J. W. Deal, member of the board of directors, and Alfred M. Pence, secretary and general counsel of the Wyoming chapter.

In the center view, left to right, are James B. Kennedy, national director from Colorado; Mr. Street; David A. Olson, national director from Colorado; Mr. MacLeod; and Mr. Marshall.

In the lower view, are, left to right, W. S. Hibberd, secretary-manager; Gerald H. Phipps, president, and N. R. Petry, vice president of the Colorado Building Chapter, and Earle W. Devalon, managing director of the Colorado Contractors Association.

North Mississippi Chapter Gets Charter

» THE North Mississippi Chapter of The Associated General Contractors of America formally received its charter of membership in the national association at a ceremony held last month in Meridian, Miss. The charter was presented by W. Murray Werner, of Shreveport, La., an A.G.C. national director, and accepted by Lee B. Priester, Jr., of Meridian, president of the chapter.

Although the group, whose headquarters is in Corinth, became a chapter in June of last year, the charter was not presented at that time. The chapter has jurisdiction for building construction in the following counties of Northeastern Mississippi: Jones, Wayne, Jasper, Newton, Neshoba, Winston, Choctaw, Webster, Calhoun, Pontotoc, Union, Benton, Clarke, Lauderdale, Kemper, Noxubbe, Oktibbeha, Lowndes, Clay, Chickasaw, Monroe, Lee, Itawamba, Prestiss, Tippah, Alcorn and Tishomingo. William Roberds, of Corinth, is secretary-treasurer.

Lee B. Priester, Jr., left, president of the North Mississippi Chapter, receives an A.G.C. charter for his chapter from W. Murray Werner, of Shreveport, a national director.

The chapter, which has 14 member-firms, is one of four A.G.C. groups in Mississippi. The others are: Mississippi Gulf Coast Chapter, a building group with headquarters in Gulfport; the Associated Building Contractors of Mississippi, another building construction chapter, with headquarters in Jackson, and the Mississippi Valley Flood Control Branch, a highway and heavy construction chapter.

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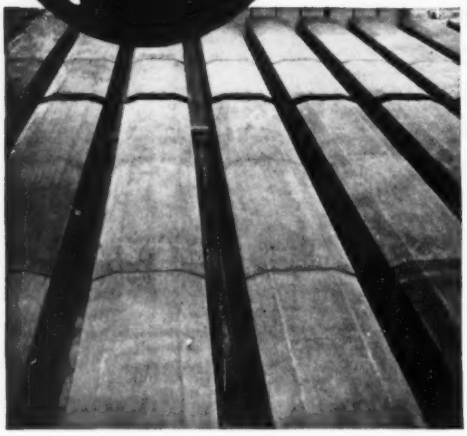

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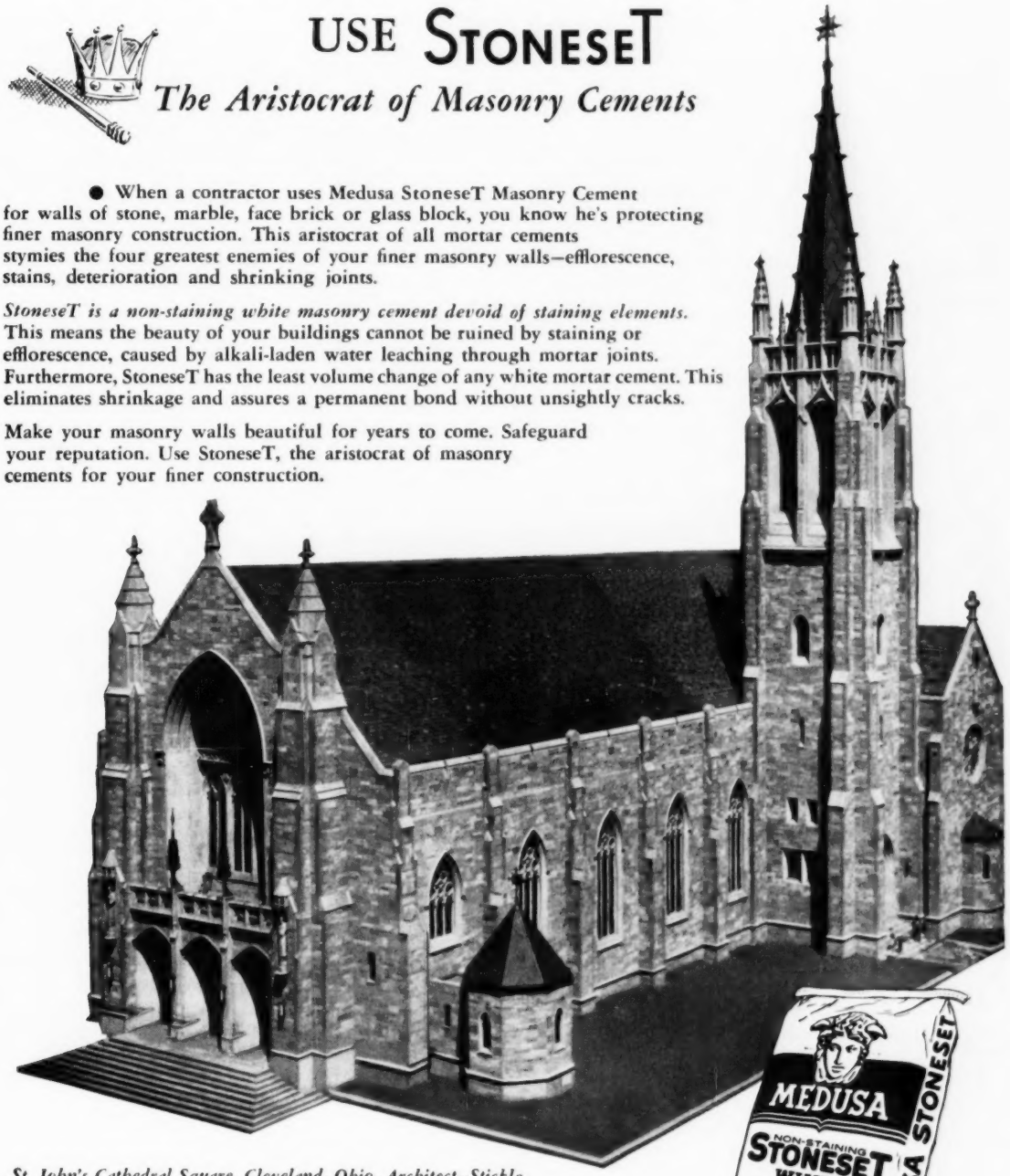

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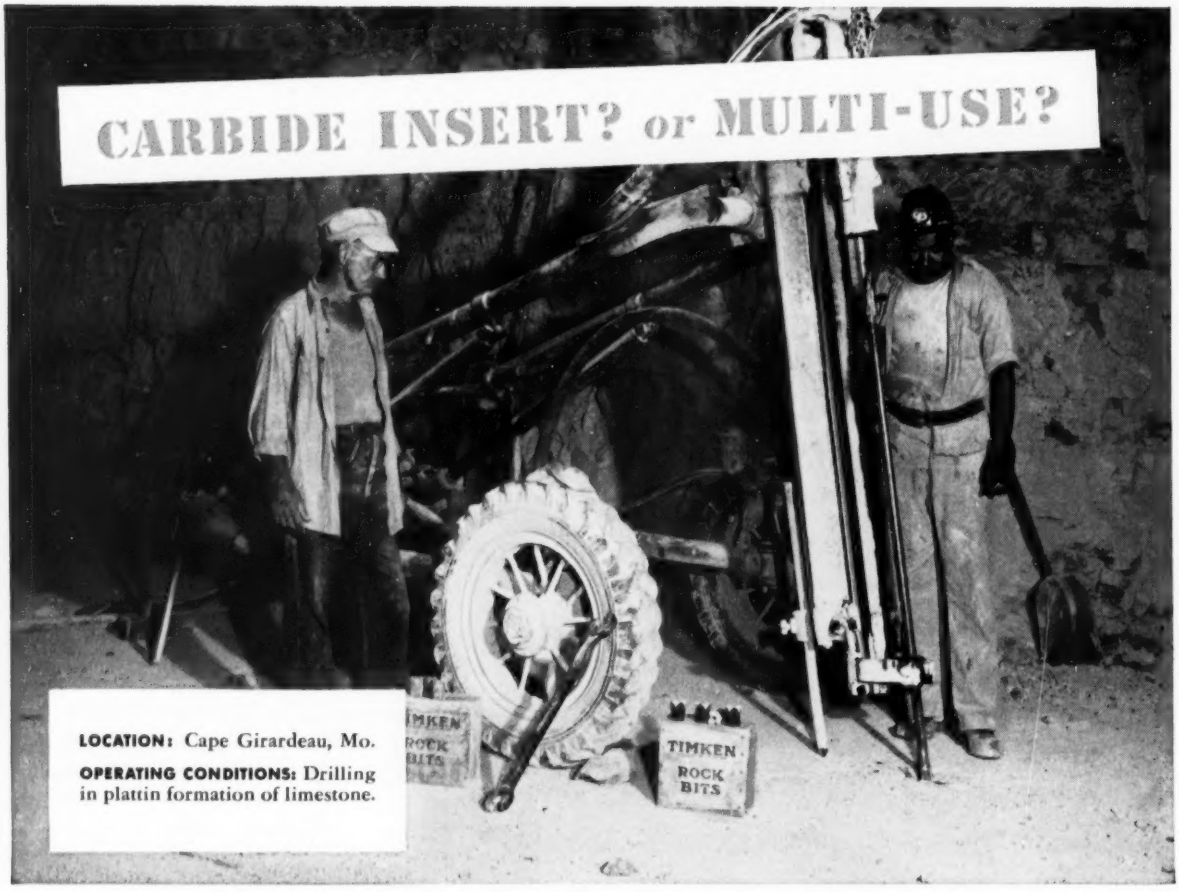
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Walter K. Shaw Retires

Walter K. Shaw, for many years vice president and treasurer of the Turner Construction Co., of New York City, retired recently, but remains a director of the firm.

Mr. Shaw

Mr. Shaw was active in A.G.C. affairs and held various committee posts, including chairmanship of the Building Division and a seat on the President's Cabinet in 1946. Functions of the President's Cabinet were later taken over by the Executive Committee.

He recently became associated with Management Counselors, Inc., an organization of retired executives from 38 industries working as consultants in finance, production, sales and administration.

Chapter Re-elects Officers

The Fort Worth Chapter of the A.G.C. re-elected officers and directors for the coming year at a luncheon meeting Oct. 1 in the Worth Hotel.

Re-elected president was J. R. Murphy, a building contractor. Others re-elected include Lon M. Osborne, Mitchell and Osborne Construction Co., vice president; Charles McDonald, Gresham Construction Co., secretary-treasurer; and R. B. Dunbar, manager.

The directors include Earle Cloer, H. H. Franks, Don Lewis, Thomas McCann and John Potter.

Mr. McCann, chapter president in 1951, told members that he expected to resign within a month to accept a position in the State Department's Foreign Service.

In a resolution the chapter asked the local board of education to award all public school construction projects under a single contract, with a general contractor in charge of all subcontractors on the job.

Mr. Dunbar reported to the luncheon on the Sept. 14-16 mid-year meeting held in Chicago by the A.G.C. Governing and Advisory Boards which thoroughly analyzed industry conditions and made recommendations for future A.G.C. actions.

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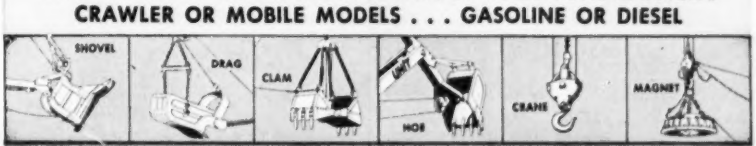

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A.G.C. Branch and Chapter Meeting Dates

» A MONTHLY, cumulative list of annual meetings scheduled by chapters and branches of The Associated General Contractors of America, as reported to THE CONSTRUCTOR:

Nov. 19. Chicago Builders Chapter. Chicago. Builders Club.
Dec. 1. Colorado Building Chapter. Denver. Albany Hotel.
Dec. 1. Dallas Chapter. Dallas. Dallas Athletic Club.
Dec. 1. Eastern Washington Builders Chapter. Spokane. Desert Hotel.
Dec. 2. Waco Chapter. Waco. Elite Cafe on "The Circle."
Dec. 2-3. Wisconsin Chapter. Milwaukee. Plankinton Hotel.
Dec. 4-5. Northern California Chapter. San Francisco. Palace Hotel.
Dec. 5. New Mexico Building Branch. Albuquerque. Hilton Hotel.
Dec. 6-7. Municipal Contractors Association. Dallas. Adoephus Hotel.
Dec. 7. Florida West Coast Chapter. Tampa. (Not Selected)
Dec. 7. Ohio Highway Chapter. Columbus. Neil House.
Dec. 7-8. A.G.C. of Illinois. Springfield. Hotel Leland.
Dec. 7-8. A.G.C. of North Dakota. Fargo. Gardner Hotel.
Dec. 8. Austin Chapter. Austin. A.G.C. office.
Dec. 8. Seattle Chapter. Seattle. A.G.C. office.
Dec. 8-9. Master Builders of Iowa. Des Moines. Savery Hotel.
Dec. 9. A.G.C. of Western Kentucky. Paducah. Southwood Country Club.
Dec. 9-10-11. A.G.C. of South Dakota, Inc. Huron. Marvin Hughitt Hotel.
Dec. 10. A.G.C. of New Hampshire and Vermont. Manchester. Carpenter Hotel.
Dec. 11. South Texas Chapter. Corpus Christi. Shoop's Party Room.
Dec. 14. San Antonio Chapter. San Antonio. Plaza Hotel.
Dec. 14. Spokane Chapter. Spokane. Hotel Spokane.
Dec. 15. Associated Building Contractors of Mississippi, Inc. Jackson. The Rotisserie.
Dec. 15. West Texas Chapter. (Not Selected).
Dec. 15-16. New York State Chapter, Inc. New York. Waldorf Astoria.
Dec. 16. A.G.C. of Massachusetts. Boston. Hotel Kenmore.
Dec. 17. Memphis Chapter. Memphis. A.G.C. Building.
Jan. 5. Toledo Chapter. Toledo. Commander Perry Hotel.
Jan. 6. Northwest Florida Chapter. Pensacola. A.G.C. offices, Theisen Building.
Jan. 6-7. Kansas Contractors Association. Kansas City. Muehlebach Hotel.
Jan. 7. Fort Worth Chapter. Fort Worth. Worth Hotel.
Jan. 7. Southern Nevada Builders Chapter. Las Vegas. Chapter office.
Jan. 8-9. Intermountain Branch. Salt Lake City. Hotel Utah.
Jan. 8-9. Montana Contractors Association. Billings. Northern Hotel.
Jan. 8-9. West Virginia Chapter. Charleston. Daniel Boone Hotel.
Jan. 11. Portland Chapter (Highway and Heavy). Portland. Multnomah Hotel.
Jan. 12. General Building Contractors Association. Philadelphia. (Not Selected).
Jan. 12. Master Builders Association. District of Columbia. Mayflower Hotel.
Jan. 13-14. A.G.C. of Iowa. Des Moines. Hotel Savery.
Jan. 13-14. A.G.C. of Missouri. St. Louis. Statler Hotel.
Jan. 14. Baltimore Builders Chapter. Baltimore. Park Plaza Hotel.
Jan. 14. San Diego Chapter. San Diego. El Cortez Hotel.
Jan. 15. Alabama Branch. Birmingham. Tutwiler Hotel.
Jan. 15. Mountain Pacific Chapter. Seattle. Benjamin Franklin Hotel.
Jan. 16. Oklahoma Chapter (Builders Division). Oklahoma City. Skirvin Hotel.
Jan. 20. Louisville Chapter. Louisville. Chapter Building.
Jan. 21. Contractors Association of Philadelphia and Eastern Pennsylvania. Philadelphia. Bellevue-Stratford Hotel.
Jan. 20-21. Nebraska Building Chapter. (Not Selected).
Jan. 21-22-23. A.G.C. of Minnesota. St. Paul. St. Paul Hotel.
Jan. 22-23. Colorado Contractors Association. Denver. Shirley Savoy Hotel.
Jan. 27. A.G.C. of Rhode Island. Narragansett Hotel.
Jan. 28-29. Virginia Branch. Hot Springs. The Homestead.

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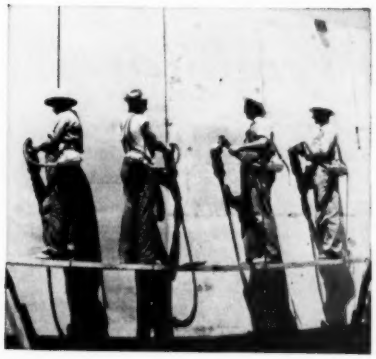

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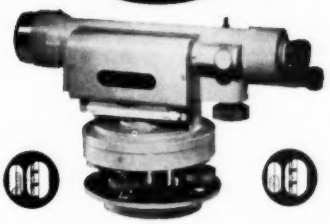

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CHAPTERS • BRANCHES

Jan. 29. Central California Chapter. San Francisco. Mark Hopkins Hotel.

Jan. 29. Mississippi Valley Flood Control Branch. Memphis. Hotel Peabody.

Feb. 6. Kansas Chapter, Builders Division. Manhattan. Wareham Hotel.

Feb. 9. Tacoma Chapter. Tacoma. Winthrop Hotel.

Feb. 11. Contractors Association of Western Pennsylvania. Pittsburgh. Hotel William Penn.

Feb. 12-13. Kentucky Highway Chapter. Louisville. Kentucky Hotel.

March 10. Houston Chapter. Houston. College Inn.

April 6-7. Michigan Road Builders Association. Detroit. Hotel Statler.

April 15. Buffalo Chapter. Buffalo. Buffalo Club.

Tentative Dates

Jan. 15. A.G.C. of Milwaukee. Milwaukee. Schroeder Hotel.

Jan. 18. Nebraska Chapter. (Not Selected).

Jan. 20. Detroit Chapter. Detroit. Detroit Athletic Club.

Jan. 20. Southern California. Los Angeles. (Not Selected).

Jan. Alaska Chapter. Seattle. New Washington Hotel.

Jan. South Florida Chapter. (Not Selected).

Jan. or Feb. A.G.C. of Wyoming. Cheyenne. Frontier Hotel.

Feb. Michigan Chapter. Lansing. Olds Hotel.

March. Baton Rouge Chapter. Baton Rouge. (Not Selected).

March. Cincinnati Chapter. Cincinnati. Cincinnati Club.

March. Metropolitan Builders Association. New York. University Club.

Houston Chapter of the A.G.C. recently awarded its scholarship at the University of Houston to Robert H. Lightfoot, son of Thomas E. Lightfoot, who is associated with Wyatt C. Hedrick, architect and engineer. The scholarship awarded annually to "an outstanding and deserving" student in home building and light construction, provides $100 in tuition a year for four years.

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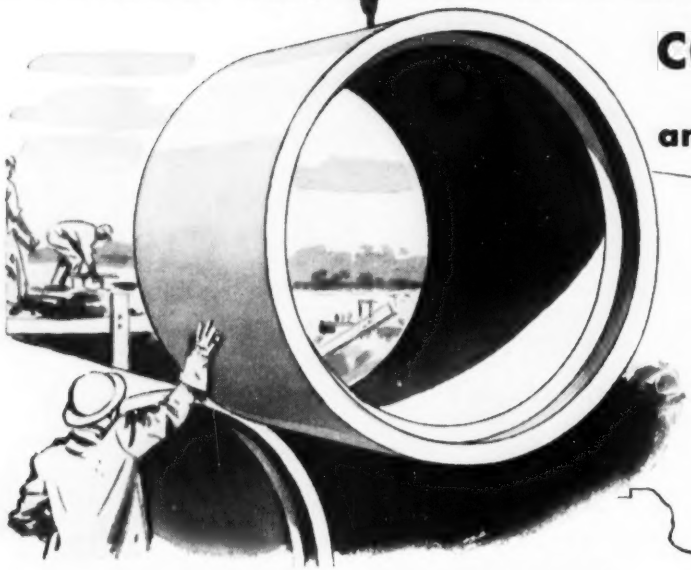

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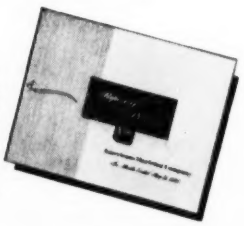

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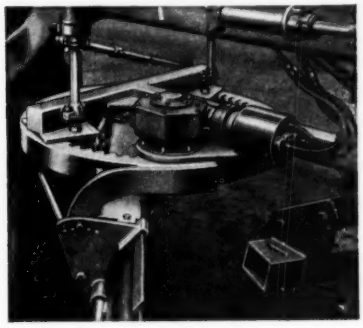

Hydraulic-powered circle for Galion Model 503

Shovel-Cranes—*Unit Crane & Shovel Corp., 6307 W. Burnham St., Milwaukee 14.* Torque drive is now available on ¾-yd. and ½-yd diesel Unit machines. Chrysler IND–16A 6-cylinder industrial gasoline engines and Chrysler torque converters are offered on ¾-yd. machines and 2-cylinder G. M. 2-71 diesel engines with Fuller torque converters are available as optional equipment on Unit 614, 617 and 1014 machines.

Fire-Retardant Paint—*Fyr-Kote Co., 27th & Douglas Sts., Omaha.* Oil-base fire-retardant interior flat wall paint has been listed by Underwriters Laboratories and every can carries Underwriters' label. When exposed to flame "Fyr-Kote" pours out carbon dioxide and calcium chloride which smother fire and retard spread of flame, manufacturer states. Full information, data, tests, etc., are available from manufacturer.

Heater—*American Air Filter Co., Mobile, Ill.* Re-designed standard model Herman Nelson portable air heater is powered by new Briggs and Stratton Model 6 engine. Use of streamlined engine has permitted modification in mounting to permit simpler arrangement of components at air intake end of heater. Fuel metering valve can reduce capacity of unit from maximum 385,000 BTU's to 100,000 BTU's per hour.

Loaders — *Mixermobile Manufacturers, 8027 N. E. Killingsworth, Portland 20, Oreg.* Five new attachments for "Scoopmobile" Models LD-10 and LD5 front-end loaders are lift forks, backfill blade, crane boom, concrete hopper and dozer blade. Lift forks, backfill blade and concrete hopper mount directly on hydraulic boom, replacing scoop, and using standard fittings. Dozer blade, for LD10 only, attaches directly to chassis.

Noise-Cancelling Microphone—*Roanwell Corp., 662 Pacific St., Brooklyn 17, N. Y.* "Confidencer" is microphone of design which permits speech to be transmitted clearly while neutralizing unwanted noises. Neutralizing is accomplished by directing noise through special sound chambers to both sides of diaphragm. Energy produced by unwanted noise is cancelled out as pressure of one side of

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diaphragm counteracts pressure on other side. However, when one talks directly into microphone, sound unbalances diaphragm acoustically so that desired signal is transmitted in normal manner.

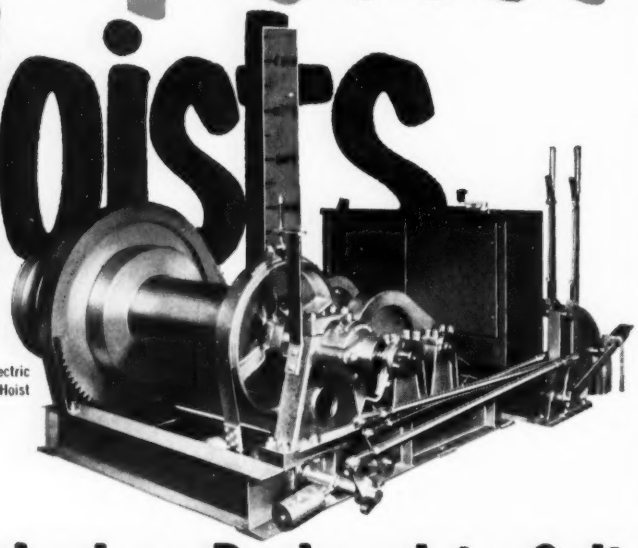
Power Wheelbarrow—*Kwik-Mix Co., Port Washington, Wis.* New safety feature of "Moto-Bug" is "dead man" internal expanding brake system which instantly stops all machine movement when operator's foot is off treadle. On fork lift version of machine all wheels are equipped with soft core rubber tires. To provide more efficient transmission of power, cog-type V-belt of rayon cord construction is used. Cog design reduces belt stretch and slippage. New feature is vertical clutch control lever with neutral, forward and reverse positions. Steering wheel is now 3'6" above riding platform.

Trucks—*International Harvester Co., 180 N. Michigan Ave., Chicago 1.* International offers 23 models in R-line, conventional or cab-over-engine highway and off-highway 6-wheelers ranging in gross vehicle weight ratings from 22,000 to 90,000 lbs. Engines range from 130 to 356 h.p. with choice of gasoline or liquefied petroleum gas fuel systems in all models. Diesel engines are available in models of 30,000 g.v.w. and up. Third differential and power divider allows each wheel to rotate independently, distributing power equally to all driving wheels.

Concrete Saw—*Eveready Brik-Saw Co., 1509 S. Michigan Blvd., Chicago 5.* New saw has hydraulic control for lowering diamond blade in order to provide longer blade life. With control, operator can lower blade into cut at controlled rate of speed and can lift it out without twisting or binding. It is recommended for sawing contraction joints in new construction, as well as for breaking out concrete or asphalt. Saw has "Tri-Matic" blade alignment, automatic "floating action" of saw wheels that prevents binding or tilting of blade when saw is operated over uneven or broken surfaces. It has dual blade shaft which makes it possible to place blade at either side for sawing in corners or confined areas. Other features are depth control lock that allows cutting to predetermined depth, friction-type foot brake that holds saw on hills or inclines, dashboard controls that permit operator to make every cutting operation from his place behind saw.

Eveready concrete saw

Superior Hoists



Friction Drum Electric Tow Haulage Hoist

Standard or Designed to Suit

Mine, shaft, incline and special hoists — large or small — designed to suit your specialized requirements, yet utilizing standardized parts. This is possible through modifying and recombining standard parts, the result of engineering skill gained by Superior-Lidgerwood-Mundy over many years of designing and building a full range of these types of hoists. In addition to hoists built to order, Superior-Lidgerwood-Mundy produces high quality standard hoists.

Write for bulletins and catalogs!

Superior-Lidgerwood-Mundy Corporation

Main Office and Works: SUPERIOR, WISCONSIN, U. S. A.

New York Office, 7 Dey Street, New York 7, N. Y.

Move More with a MICHIGAN

"MICHIGAN air control and clutches make operation smooth and easy. This is our second MICHIGAN—it's definitely MICHIGAN for us!"— C. KOOISTRA, Owner

HERE ARE THE JOB FACTS

JOB..... Cellar excavation, Camp Gaw, N. J.

MACHINE..... MICHIGAN C-16 . . . hoe, 30" pads

MATERIAL..... Hard pan, stump removal

YARDAGE..... 400 per day

FUEL..... 10-12 gallons, 8 hours

OWNER..... C. Kooistra, Midland Park, N. J.

COMMENT..... "Swing, travel, hoist, steer all at once—easy! That air control and MICHIGAN clutch are tops." Cornelius Kooista (son), operator

TO MOVE MORE YARDAGE FASTER, AT LOWER COST- Make it a MICHIGAN

These 5 cost-cutting quality advantages explain why over 60% of MICHIGANS sold are repeat orders

AIR CONTROL — just easy, effortless operation, because air rams actuate the clutches. An operator stays at top efficiency all day without tiring, because air power instead of muscle power does the work. MICHIGANS have been air controlled for over 20 years.

ONE-PIECE CIRCLE GEAR AND CARBODY—Compare MICHIGAN construction to others: the *circle gear and carbody in a single heavy alloy-steel casting.* No wonder this machine lasts longer, requires a minimum of service.

HEAVY TURNTABLE CASTING—Notice this heavy-duty construction usually found only in the biggest machines: turntable deck, side frames and hook-roller mounting brackets in a single casting—*One main cause of excessive wear and replacement completely eliminated!*

FAMOUS MS CLUTCH—Another MICHIGAN exclusive: a single-disc double-face clutch with six interchangeable segments on each face, so you can replace segments in a matter of minutes—*in the field.*

QUICK MAINTENANCE AND SERVICE—Big time savings here—grease the whole job in a few minutes, save hours. Compare MICHIGAN air control simplicity to the complicated mass of toggles, rods, joints, etc., on mechanical control. Eliminates tedious greasing.

Check the MICHIGAN Line—point by point against all others. Convince yourself—see these powerful machines in action—fast, easy, smooth. You'll see right away that *MICHIGAN Means More for Your Money.*

See your MICHIGAN dealer—
and write for literature.

CLARK EQUIPMENT Construction Machinery Division

CLARK EQUIPMENT COMPANY

485 Second Street, Benton Harbor, Michigan, U.S.A.

STANDARD FORMS

COVERING IMPORTANT CONTRACTING PROCEDURE

Prepared by The Associated General Contractors of America and Cooperating Bodies

Order No.	MANUALS	Per Copy	Per Dozen	Per 100
1.	A.G.C. Manual ..... (Contains documents listed below: Nos. 3-30, inclusive, and Nos. 34, 35, 36, 36a, 37, 38).	$5.00	$50.00	———
2.	Accident Prevention Manual (Revised and enlarged 1952)	3.00	30.00	$210.00
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3.	Suggested Form of Contract, Engineering Construction Projects, prepared by A.S.C.E. and A.G.C., 1953 edition.....	.25	2.75	20.00
4.	Standard Building Contract of the American Institute of Architects—Revised 6th Edition	.50		47.50
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11.	Equipment Rental Agreement.....	.10	.50	3.00
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22.	Equipment Record—Cardboard	.10	.50	3.50
	INVESTIGATION OF BIDDERS			
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36.	Concrete Mixer Standards.....	Single copies—no charge; quantity prices on application.		
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37.	A.I.A. Standard Form of Arbitration Procedure			
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FOR A.G.C. MEMBERS ONLY

A.G.C. EMBLEM

List of Styles and Prices on request.

SIGNS AND SEALS

39.	A.G.C. Cardboard Seal (red and black) 24" dia.	.50
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Metal Seals and Decals: 20% discount for orders of more than 50; 40% discount for orders of 200 or more.

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Form SS1: Application for Employment; Form SS2: Employees' History Record; Form SS3: Employees' Employment and Earnings; Form SS4: Payroll. List of prices and styles will be furnished to A.G.C. members on request.

USE THE CONVENIENT COUPON TO PLACE YOUR ORDER

Order No.	Amount	Cost
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41a.		
41b.		

43. Price List and Samples ☐

Price List and Styles of Emblem ☐

TOTAL COST .....

Make Checks payable to CONSTRUCTION FOUNDATION, A.G.C., Munsey Building, Washington 4, D. C.

Gentlemen: Enclosed find check for $..... for which please send materials as ordered by number herewith.

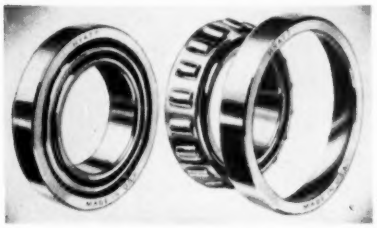
Name..... *Address*.....

City..... *Zone*..... *State*.....

Nov. 1953

NEW EQUIPMENT • MATERIALS

Bearings—*Hyatt Bearings Division, General Motors Corp., Harrison, N. J.* Self-aligning "barrel bearings" are available in volume quantities for general industrial applications. They are accurately ground barrel-shaped rollers, combined with precise race contours to provide maximum load-carrying capacity. These angular contact bearings are designed to sustain radial, thrust or combination loads. Conditions of shaft misalignment do not interfere with operation.



Hyatt's self-aligning "barrel bearing." Left, complete unit, right, in components.

Statement of the Ownership, Management and Circulation Required by the Act of Congress of August 24, 1912, as Amended by the Acts of March 3, 1933, and July 2, 1946.

Of THE CONSTRUCTOR, published monthly at Washington, D. C., for October 1953.

1. The names and addresses of the publisher, editor, managing editor, and business manager, are:

Publisher: THE CONSTRUCTOR, Inc., 1227 Munsey Building, Washington 4, D. C.

Editor, H. E. Foreman, 1227 Munsey Building, Washington 4, D. C.

Managing Editor, William E. Woodruff, 1227 Munsey Building, Washington 4, D. C.

Business Manager, M. S. Beck, 1227 Munsey Building, Washington 4, D. C.

2. The owner is: (If owned by a corporation its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member must be given.)

THE CONSTRUCTOR, Inc., 1227 Munsey Building, Washington 4, D. C.

The Associated General Contractors of America, Inc., 1227 Munsey Bldg., Washington 4, D. C.

C. P. Street, president, McDevitt & Street Co., Charlotte, N. C.

John MacLeod, vice president, Macco Corp., Paramount, Calif.

William Muirhead, secretary-treasurer, Wm. Muirhead Construction Co., Durham, N. C.

3. The known bondholders, mortgagees, and other security holders owning or holding one per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner. M. S. Beck, *Business Manager.*

Sworn to and subscribed before me this 13th day of October, 1953.

(SEAL) ELSIE L. LEISHEAR.

(My commission expires Dec. 31, 1953.)

COMPLETE PLANTS
from a Single Source

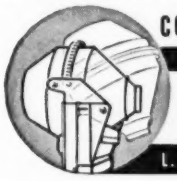
- "Tilt-Up" Mixers
- Ready-Mix Plants
- Expressway Semi-Portable Plants
- Dry Batch Plants
- Cement Bins
- Aggregate Bins
- Cement Storage

ENGINEERED TO WORK TOGETHER

From conveyor to elevator, from bin to mixer Burmeister equipment is designed and built by the same organization. Because each product is *"engineered to work together"* you are assured less costly "conversions," maximum production speed, accurate delivery of materials, and greater economy of operation. See your nearest Burmeister Distributor or write for details.

FREE CATALOG

Send for new 16-page illustrated Catalog of Burmeister Plants and Equipment.

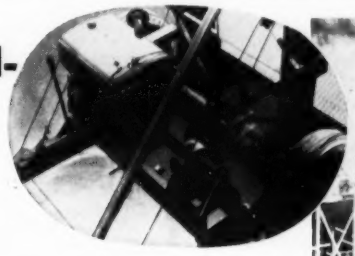


COMPLETE PLANTS FROM A SINGLE SOURCE

Burmeister

L. BURMEISTER CO., 4527 W. MITCHELL ST., MILWAUKEE 14, WISCONSIN

WISCONSIN-POWERED *BUCK HOIST*



Lifts 20 Cubic Yards per Hour

Here's another typical Wisconsin Heavy-Duty Air-Cooled Engine construction application . . . hoisting concrete for the new Chemistry Building at Xavier University, Cincinnati, O. A Model TE 2-cylinder Wisconsin Air-Cooled Power Unit handles the load, delivering up to 20 cu. yds. of concrete per hr. with a ½ yd. self-dumping bucket (dumping here at the 56 ft. level).

In addition, the tower is self-erecting up to 40 ft. according to the manufacturer, Buck Equipment Corporation, Cincinnati 2, Ohio.

The construction contractor reports that the rig works equally well bringing up bricks, cut stone, reinforcing rods, steel beams and other materials. All of which calls for HEAVY-DUTY DEPENDABILITY from the Power Unit.

Wisconsin Engine features such as tapered roller bearings at both ends of the crankshaft, gear-driven high tension outside magneto, positive AIR-COOLING and lubrication contribute to all-around dependability and peak performance, day-in and day-out.

You can't go wrong when you specify Wisconsin Air-Cooled Engine Power for your equipment.

Power TO FIT THE JOB

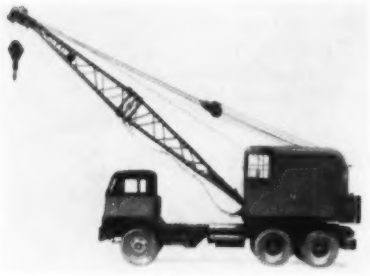
Power TO FIT THE MACHINE

WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

Truck Cranes—*The Thew Shovel Co., Lorain, Ohio.* New "Moto-Cranes" are MC–254W in "TL" series, with lifting capacity of 17½ tons, and MC–424, with lifting capacity of 22½ tons. MC–254W is 3-axle machine available as ¾-yd. shovel, crane, dragline, clamshell, hoe or 1¼ cu. yd. scoop shovel. Over-all width is 106″, maximum boom length with tip extension is 95′. It is equipped with 8 forward speeds, 2 reverse speeds and air brakes. It can travel up to 37 m.p.h. It is available with diesel or gasoline power. Model MC–424 is 2-engine machine with gasoline-powered turntable or superstructure mounted on 3-axle carrier, with drive on 2 rear axles, powered by separate gasoline engine at 10 forward speeds (up to 27 m.p.h.) and 2 reverse speeds. Carrier has over-all width of 96″ and is equipped with air brakes. Maximum boom length with tip extension is 125′.



Moto-Crane MC-424

First-Aid Kits—*Mine Safety Appliances Co., 701 N. Braddock Ave., Pittsburgh 8.* New "Type D" first-aid kits feature simplified, illustrated instructions in large, clear type. Labeling meets latest requirements of U. S. Pharmacopeia and Food and Drug Administration. Supplies are of "pharmaceutically controlled quality," manufacturer states. Bulletin 0401-2 describing kit and its contents is available from manufacturer.

Wrenches—*Mall Tool Co., 7725 S. Chicago Ave., Chicago 19.* Three impact wrenches for tightening or removing bolts and nuts, removing broken cap screws and studs, tapping, reaming and driving and removing of lag screws and screw spikes are: Model PW–5014S, taking ⅞″ bolt or nut, spindle having ¾″ square drive and wrench having speed of 1,600 r.p.m. free at 90 p.s.i.; Model PW–4012P, taking ¾″ bolt or nut, spindle having ¾″ square drive and wrench having speed of 1,300 r.p.m. free at 90 p.s.i.; Model PW–308P taking ½″ bolt or nut, spindle having ½″ square drive, wrench having free speed of 1,400 r.p.m. at 90 p.s.i. All models have 5-vane rotary type air motor, built-in automatic oiler and pin lock.

Heating Electrodes—*Eutectic Welding Alloys Corp., Flushing, N. Y.* "ThermoTrode" for quick heating, annealing, heat-treating, softening, burning off paint, pre-heating, is inserted in ordinary electrode holder of DC arc welder and is ready to work. It is steel core electrode with patented flux which establishes unique type of arc. Instead of depositing metal, it oxidizes it with searing blast so that core metal disintegrates into powder which can be brushed off. It is available in ⅛″, 5/32″ and 3/16″ diameters.

MC
BIN BATCHER-MIXERS
An Unbeatable Combination
Whether used for charging an individual 11S or 16S Mixer, or a pair as shown, a Bin-Batcher is the short cut to profit. Enables you to take the advantages of a central plant right onto any job. Several models. Ask for details.
• PORTABLE
• SAVES LABOR
• CUTS COSTS
CONSTRUCTION MACHINERY COMPANIES Waterloo, Ia.

NEW LITERATURE

Earthmoving Machines—*Caterpillar Tractor Co., Peoria 8, Ill.* D8 pusher is presented in Form 30903. It describes application of D8 to push-load in tandem by using C-frame and push block. Cut-away drawing shows new oil-type clutch . . . D6 tractor with oil-type flywheel clutch is pictured and described in Form 30825 . . . New No. 6 shovel and HT4 shovel are pictured in variety of earth-moving and industrial operations in Form 30791.

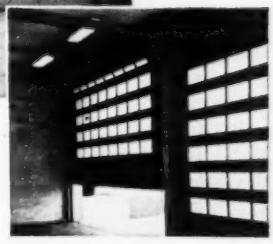
Shovels—Cranes—*The Thew Shovel Co., Lorain, Ohio.* Book on construction of Lorain-TL series of shovels-cranes is entitled *Inside Story on Package Component Design of Thew Lorain TL Series.* It is "Trans-Vision" presentation that enables one to see inside machine. Book consists of rotogravure printing on transparent acetate film so that various assemblies in machine can be superimposed on each other just as they are in actual machine. Each page displays one "packaged" component of turntable in complete detail. Collectively, pages illustrate entire turntable. Two pages are made from one folded transparent sheet of film so front and back of each unit are shown on either page. Every part of turntable is accurately portrayed and each unit is illustrated in different color to make it distinct from other parts. Cross-sections within individual units illustrate their particular construction.

Jackbits—*Ingersoll-Rand Co., 11 Broadway, New York 4.* Complete range of Carset jackbits for use with most of popular threaded connections in use today are presented in Form 4146. Selection guide for choosing right bit for each connection and application is included.

Electric Tools—*Porter-Cable Machine Co., 24 Exchange St., Syracuse 8, N. Y.* Catalog 101 lists 52 portable electric tools and kits with over 400 attachments. Tools and their uses are illustrated. Complete specifications and prices are given.

Conveyor—*The Fairfield Engineering Co., Barnhart St., Marion, Ohio.* Bulletin on "Builder Conveyor" shows it in action handling bricks, blocks, tile, lumber, packaged items, corrugated metal sheets and other building material. Sizes and models available are listed.

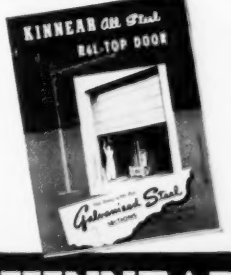
Kinnear Steel RōL-TOP Doors



Extra "Doorability" of Heavily Galvanized Sections*

Will not sag, warp, rot or split
Built to fit openings of various sizes
Easy space-saving upward action
Opens completely out of the way
Lasting resistance to fire, wind, weather
Heavy-duty torsion spring counterbalance
Provision for any number of glass panels
Easily installed in old or new buildings

WRITE FOR THIS FREE RoL-TOP BULLETIN TODAY!



KINNEAR ROLLING DOORS
Saving Ways in Doorways

In Kinnear Steel RōL-TOP Doors, you get the efficiency of smooth ball-bearing upward action . . . *plus* all-steel strength and durability . . . *plus* provision for glass panels in one or more door sections, as desired.

*To assure extra service life with minimum maintenance, the rugged steel sections are given a heavy coating of pure zinc (1.75 oz. per square foot of flat metal per ASTM standard) by the hot process. Then Kinnear's Paint Bond (a special phosphate immersion process) is added, to make sure paint will adhere *immediately and thoroughly* to the protective zinc coating.

In every detail, Kinnear Steel RōL-TOP Doors feature extra strength and ruggedness, for long, heavy-duty, low-cost performance. Sizes to fit any opening. Manual, chain, or motor operation. WRITE FOR FULL DETAILS.

Kinnear Steel RōL-TOP Doors are designed and built by the same door specialists who *originated* the door with the interlocking steel-slat curtain—famous for more than half a century as the Kinnear Steel Rolling Door.

The KINNEAR Manufacturing Co. *Offices and Agents in All Principal Cities*

FACTORIES: 650-680 Fields Ave., Columbus 16, O.—1742 Yosemite Ave., San Francisco 24, Calif.

Wire Rope—*Bergen Wire Rope Co., Lodi, N. J. Guide to Selecting Wire Rope* covers characteristics and tells how to select rope. Uses for various grades of wire are described. It tells how to select most suitable lay and core, proper applications for 8 commonly used constructions, kinds of rope that offer greatest resistance to bending fatigue, abrasion, crushing and other factors. Included is loose-leaf sheet for tabulating detailed operating conditions as aid in writing wire rope specifications.

Compressors—*Davey Compressor Co., Kent, Ohio.* Bulletin (Form E-247) describes complete line of Davey portable air compressors. It includes photos and brief specifications of 60, 105, 160, 210, 315, 500, 600 c.f.m models. Gasoline, diesel and electric powered compressors are described in skid, 2-wheel, 4-wheel design.

Drafting Machines—*Charles Bruning Co., 4700 Montrose Ave., Chicago 41.* Booklet presents complete mechanical description of various drafting machine models, including gravity-compensated, track-type, civil engineering and detail machines. Detailed illustrations are included.

White Masonry Cement—*Medusa Portland Cement Co., 1000 Midland Bldg., Cleveland 15.* StonseT technical catalog on white non-staining masonry cement contains specification data and complete details for proportions and mixing this mortar cement. Tables give cu. ft. of mortar required with brick walls, concrete, masonry walls, masonry unit walls of clay or concrete and modular clay tile. Illustrations show examples of buildings employing StonseT in masonry work. Catalog shows types of masonry work where StonseT is recommended, discusses its salient features and gives federal and A.S.T.M. specifications it meets.

Doors—*The Kinnear Manufacturing Co., 650-680 Fields Ave., Columbus 16, Ohio.* "Rol-TOP" doors for commercial and industrial application are presented in Bulletin 80. Installations of these upward-acting sectional type doors are pictured and described. "Keystone" weather-protecting seal is featured. Electric motor operators offered with doors are described and their specifications given. Installation types and clearances are listed and door specifications are given.

Subsurface Exploration—*Institute of Industrial Research, Syracuse University, Syracuse 10, N. Y.* Refraction seismic method of determining hidden subsurface conditions is described in booklet. It tells how portable refraction seismograph works, pictures and describes typical jobs on which method may be used. How institute performs work is explained.

Shore—*Waco Manufacturing Co., 3565 Wooddale Ave., Minneapolis 16.* Bulletin describes Waco all-steel shore. Featured is patented, rapid adjustment collar, called "Speedset." Operating features and specifications are described and listed.

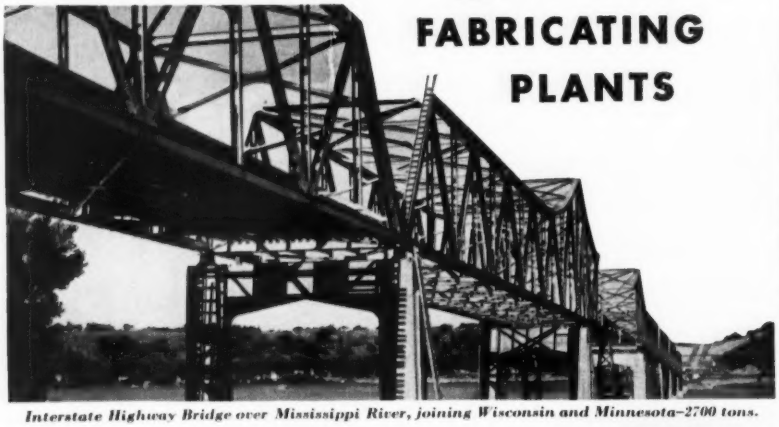
● When the bridge is huge, involving large tonnages of structural steel, the job can be parcelled out to the 3 Allied shops for fabricating. Such versatility of equipment counts where speed is a requirement.

Then, on location, Allied erecting crews know many short cuts that result in further timesaving.

Engineers with bridges to build will find it interesting and helpful to talk with our technical staff on projects out of the design stage.

Send your plans and specifications to us to be estimated.

Both types of Bridges are daily grist in the 3 ALLIED FABRICATING PLANTS



Interstate Highway Bridge over Mississippi River, joining Wisconsin and Minnesota—2700 tons.

U. S. Highway 30 Bridge for Iowa Highway Commission. 836 Tons fabricated.

ALLIED STRUCTURAL STEEL COMPANIES
Engineers • Fabricators • Erectors
20 NORTH WACKER DRIVE, CHICAGO 6, ILLINOIS

● Clinton Bridge Corporation
● Gage Structural Steel Corporation
● Midland Structural Steel Corporation

Fabricators & erectors of structural steel for highway & railroad bridges; industrial, office, school, & government bldgs.; airport structures; harbor facilities.

The SPICKELMIER Co. held open house for builders and architects Oct. 15 and 16 in their enlarged Indianapolis plant for production of "Rapidex," new system of construction for roofs and floors. Guests saw demonstrations of system of fabricating and assembling special blocks which make up sectional slabs, composed of coarse and fine Haydite aggregate and portland cement.

Gordon W. Rowand has been appointed assistant sales manager of LINK-BELT SPEEDER CORP.

KOEHRING Co. announces the appointment of E. A. Smith as vice president and manager of its 2 export sales subsidiaries, Koehring Inter-American Co. and Koehring Overseas Co. . . . Koehring has purchased Waterous Co., Ltd., Brantford, Ontario, Canada. E. O. Martinson will be general manager of the Canadian firm which will be known as Waterous Koehring Co., Ltd. Manufacture of Koehring's smaller excavators will be started there as soon as assembly lines are established.

The first Permalite national sales meeting was held September 21-25 at St. Louis with 17 franchisees sending 37 representatives to discuss sales and advertising with D. L. Marlett, vice president of GREAT LAKES CARBON CORP. and general manager of its Perlite Division, and Edward A. Harris, operations manager, Paul W. Leppla, technical director, Walter A. Watson, advertising manager and J. J. Brouk, national sales agent.

J. F. Catalane has been appointed sales manager of HARNISCHFEGER CORP.'s Small Excavator Division, succeeding F. C. Edwards, recently appointed general manager of the Diesel Division. Robert P. Jones has been named assistant sales manager of the Small Excavator Division.

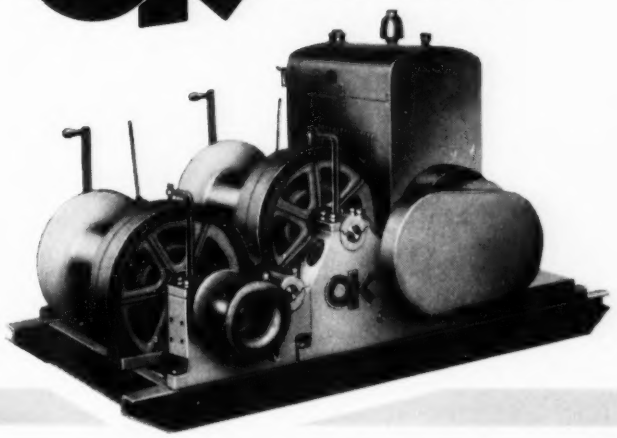
Clarence E. Killebrew has been appointed manager for marketing and sales of the Construction Machinery Division of CLARK EQUIPMENT Co. He was formerly general sales manager for the Frank G. Hough Co.

William Rodgers has been elected vice president and general sales manager of Blaw-Knox Co.

Obituary

C. Louis Meyer, 67, founder and chairman of the Board of Cecco Steel Products Corp., died suddenly October 5.

ok hoists



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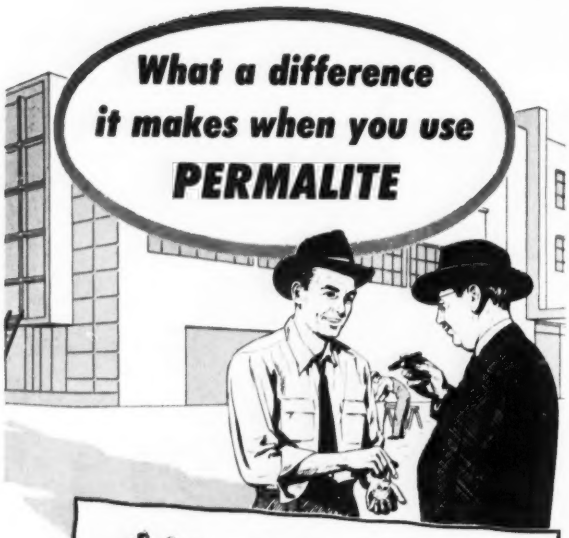

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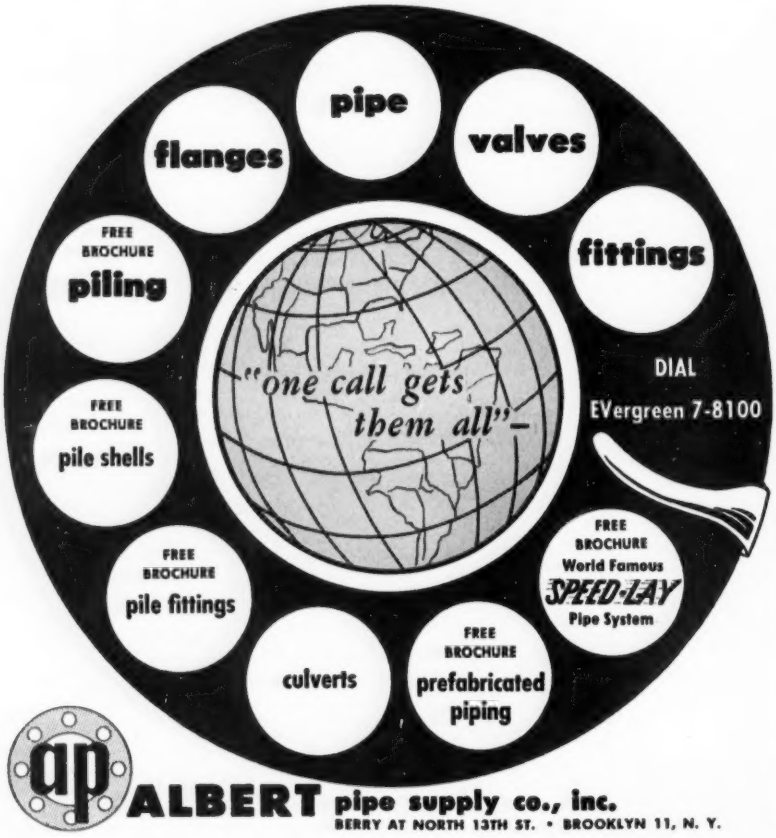

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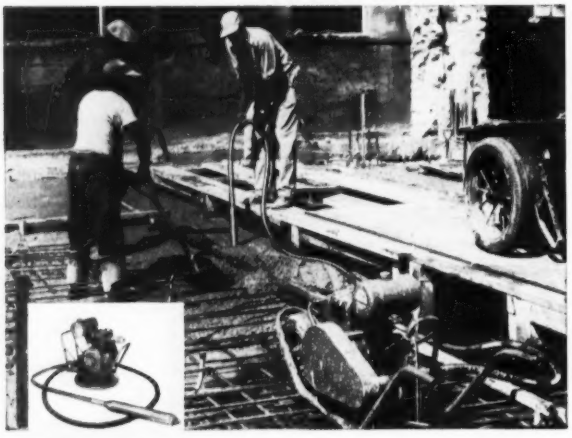

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Jaeger Machine Co.
528 Dublin Ave.
Columbus 16, Ohio

C. S. Johnson Co.
Champaign, Ill.

Kinnear Mfg. Co.
650-680 Fields Ave.
Columbus 16, Ohio

Knickerbocker Co.
Jackson, Mich.

Koehring Co.
3026 W. Concordia Ave.
Milwaukee 16, Wis.

Kwik-Mix Co.
Port Washington, Wis.

Laclede Steel Co.
Arcade Bldg.
St. Louis 1, Mo.

Lehigh Portland Cement Co.
Allentown, Pa.

LeRoi Co.
1706 S. 68th St.
Milwaukee 14, Wis.

LeTourneau-Westinghouse Co.
Peoria 5, Ill.

Leyman Mfg. Corp.
Cincinnati 2, Ohio

Lone Star Cement Corp.
100 Park Ave.
New York 17, N. Y.

Lubriplate Division
Fiske Brothers Refining Co.
Newark 5, N. J.

Macomber, Inc.
Canton 1, Ohio

R. C. Mahon Co.
Detroit 34, Wis.

Marlow Pumps
Ridgewood, N. J.

Marquette Cement Mfg. Co.
20 N. Wacker Drive
Chicago 6, Ill.

McKiernan-Terry Corp.
18 Park Row
New York 38, N. Y.

Medusa Portland Cement Co.
Midland Bldg.
Cleveland 15, Ohio

National Surety Corp.
4 Albany St.
New York, N. Y.

Naylor Pipe Co.
1280 E. 92d St.
Chicago 19, Ill.

Northwest Engineering Co.
Field Bldg., 135 S. LaSalle St.
Chicago 3, Ill.

Novo Engine Co.
212 Porter St.
Lansing 5, Mich.

O.K. Machinery Division
John C. Motter Printing Press Co.
1984 Florence St.
Columbia, Pa.

Owen Bucket Co.
7750 Breakwater Ave.
Cleveland 2, Ohio

Parsons Co.
Newton, Iowa

Peerless Pump Division
Food Machinery and Chemical Corp.
301 West Ave. 26
Los Angeles 31, Calif.

Rice Pump & Machine Co.
Grafton, Wis.

Rogers Bros. Corp.
223 Orchard St.
Albion, Pa.

Joseph T. Ryerson & Son, Inc.
P. O. Box 8000-A
Chicago 80, Ill.

Safway Steel Products, Inc.
6241 W. State St.
Milwaukee 13, Wis.

Seaman Motors, Inc.
276 N. 25th St.
Milwaukee 3, Wis.

Shunk Manufacturing Co.
Bucyrus, Ohio

H. A. Sloane Associates
415 Lexington Ave.
New York 17, N. Y.

Smith Engineering Works
510 E. Capitol Drive
Milwaukee 12, Wis.

T. L. Smith Co.
2853 N. 32d St.
Milwaukee 10, Wis.

Sonoco Products Co.
Hartsville, S. C.

Sterling Machinery Corp.
1950 Santa Fe Ave.
Los Angeles 21, Calif.

Superior-Lidgerwood-Mundy Corp.
Superior, Wis.

Symons Clamp & Mfg. Co.
4259 W. Diversey Ave.
Chicago 39, Ill.

Thew Shovel Co.
Lorain, Ohio

Timken Roller Bearing Co.
Canton 6, Ohio

Trinity White, General Portland Cement Co.
111 W. Monroe St.
Chicago 3, Ill.

Truscon Steel Division
1100 Albert St.
Youngstown 1, Ohio

Unit Crane and Shovel Corp.
6307 W. Burnham St.
Milwaukee 14, Wis.

United States Envelope Co.
Springfield 2, Mass.

United States Rubber Co.
Rockefeller Center
New York 20, N. Y.

Universal Atlas Cement Co.
100 Park Ave.
New York 17, N. Y.

Universal Concrete Pipe Co.
297 S. High St.
Columbus, Ohio

Vibro-Plus Products, Inc.
54-11 Queens Blvd.
Woodside, N. Y.

Vulcan Iron Works
329 North Bell Ave.
Chicago 12, Ill.

Walton Plywood Co.
644 E. 38th St.
Indianapolis 5, Ind.

Warren-Knight Co.
136 N. 12th St.
Philadelphia 7, Pa.

Wellman Engineering Co.
7015 Central Ave.
Cleveland 4, Ohio

White Mfg. Co.
Elkhart, Ind.

Wisconsin Motor Corp.
Milwaukee 46, Wis.

Wodack Electric Tool Corp.
4627 W. Huron St.
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644 East 38th Street—Suite #205
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WHAT ADVANTAGES DO YOU GET IN 4-WHEEL TRACTORS FOR SCRAPER OPERATION?

SINGLE AXLE PRIME MOVERS with overhung engines have some desirable features for scraper work or you wouldn't see them on many jobs. They may even outperform 4-wheel scraper tractors on an occasional job, but when you tally production and costs on all kinds of work for the life of the unit, the performance records of 4-wheel tractors tell the real story. Here are some of the factors to consider when you're comparing scrapers:

EXCELLENT MANEUVERABILITY

SAFETY AND STABILITY of the Euclid 4-wheel tractor permits full use of all the power and speed provided by the 275 h.p. engine and 10 speed transmission. Two axles assure positive steering and maximum safety under all road conditions and at any speed.

FAST, EASY LOADING is a feature of "Euc" scraper design. Cutting blade consists of 4 identical, reversible and adjustable sections providing the most efficient blade arrangement for any type of material. Short pull arms provide maximum rigidity of blade and entire scraper during loading. "Eucs" get more compacted loads and by actual scale weight carry more pounds of payload.

MANEUVERABILITY and ease of operation result from short wheel base of tractor, hydraulic booster steering, individual steering brakes on drive wheels and independent lever action control of all scraper operations. Complete 180° turn, non-stop, requires only 38'. . . less than many single axle tractor scrapers as shown in their specifications.

SAFE, FAST TRAVEL SPEED

JOB AVAILABILITY is especially important because of the heavy demands on tractors in scraper operation. "Eucs" have years of job proved performance with excellent accessibility of all working parts for servicing and maintenance. For example, service work on the entire drive axle and differential assembly of the Euclid tractor can be done without even removing a tire . . . in about one-fifth of the time required for similar work on single axle tractors. And there's no down time due to cable breakage either, because of Euclid lever action.

HAVE YOUR EUCLID DISTRIBUTOR give you complete specifications and performance data on Euclid 12 or 15.5 cu. yd. scrapers. He has a new folder, Form No. 502, that shows why "Euc" scrapers with 4-wheel tractors can out-perform all other scrapers of comparable size.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

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EUCLID THE PIONEER

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

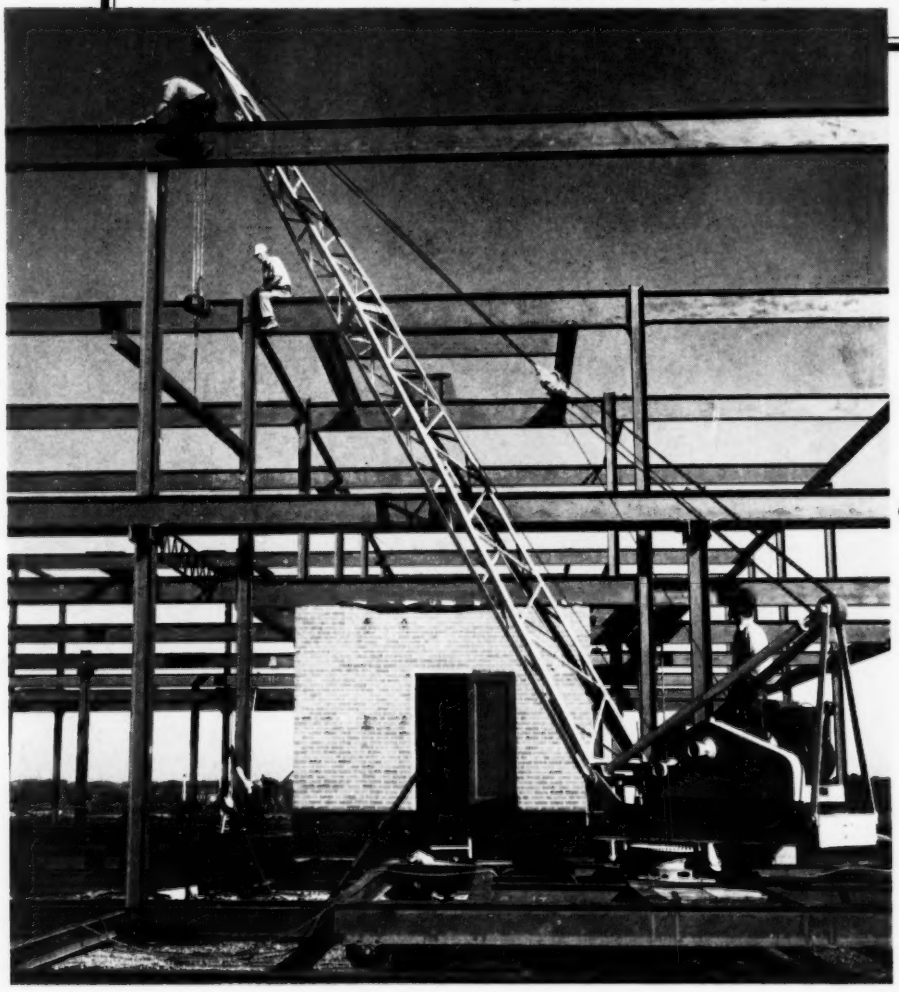
Handle loads safely and economically with a Clyde W-3 WHIRLETTE

SPECIFICATIONS
Hook Work Only — Not For Clam Shell

CAPACITY AT	10′ Radius	15′ Radius	20′ Radius	25′ Radius	35′ Radius	40′ Radius
	10,000 lbs. (Special Tackle)	6500 lbs.	4500 lbs.	3500 lbs.	2500 lbs.	2000 lbs.

HOIST LINE SPEEDS— 50 f.p.m. to 160 f.p.m. Hoist line pull 3000 pounds. BOOM LENGTHS, 20 feet, 30 feet, or 40 feet. LOAD TACKLE, 3 parts for capacities to 8,000 pounds. HANGER TACKLE, 7 part. Roller path, 36 inch diameter. TAIL SWING, 5 feet 6 inches with 2-drum hoist and swinger. Required counterweight, 1,250 pounds steel punchings.

The complete unit includes turntable, center pin and rollers, rotating platform with counterweight box, A-frame and back-legs, power unit with or without swinger tackle blocks and operating cables.



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